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INTRODUCTION

“Health is Wealth”

Health is merely a personal responsibility as well as a major public concern. It involves the joint efforts of the whole social fabric viz., the individual, the community and the state to protect and promote health.

According to World Health Organization, Health is a state of complete physical, mental, spiritual and social well being and not merely an absence of disease or infirmity.

To attain this wealthy health, Siddha system of medicine plays an important role.

Siddha system of medicine is merely a sanctity system which deals with the different aspects of life. The word “Siddh” means an object to be attained perfection or heavenly bliss. In fact Siddha system of medicine seems to be the bye-product of siddhars quest, for attaining their spiritual fulfillment.

It is a mixture of science, art and philosophy. It is a holistic science that lays emphasis on preserving and promoting the health of the individuals.

Siddhars has super-natural powers who have defined the basic laws and principles governing life on earth. Siddha science considers nature and man as the same one.

“அண்டத்திலுள்ளதே பிண்டம்

பிண்டத்திலுள்ளதே அண்டம்”

- சட்டமுனி ஞானம்

It defines, what exists in universe is the something exist in man. The five basic elements of the universe namely earth, water, fire, air and ether corresponds to the five senses of the human body and they form the fundamentals of all the corporeal things in the universe and man.

Man has three vital forces of cosmic elements named as Uyirthaathu viz., Vali, Azhal and Iyam which are activated by five basic elements called Pancha Boothams. In a healthy individual these exist in a normal ratio. Any alterations in this, results in disease.

The sanga poet Tholkaapiyar pointed out disease as sufferings and depressions.

“பையுளும் சிறுமையும் நோயின் பெருள்”

- தொல் உரி: 341

Saint Thirumoolar mentioned the importance of human body as,

“உடம்பந் அழியிற் உயிரந் அழிவந்

திடம்பட மெய்ஞானம் சேரவு மடட்டந்

உடம்பை வளர்க்கும் உபாய மறிந்தே

உடம்பை வளர்த்தேன் உயிர் வளர்த்தேனே”

- திருமந்திரம்

Thus devoid of illness is much important to attain the eternal glory and for that the vehicle is the body. To protect such a valuable body from illness, a detailed study about the cause of disease is necessary.

Siddhars classified the diseases and they confined them within 4448 types.

Unless one arrives at the exact diagnosis with a clear understanding of its etiology, pathogenesis and pathology, all attempts to treat the disease will come to a dead end. Hence a sound knowledge about Noi Naadal is very essential to formulate correct therapeutic measures for various ailments.

It is clear that Noi Naadal has an exclusively unique place in the siddha system of medicine. The author would be successfully completing her post graduation in Noi Naadal Dept. and has selected **Anda Vadham** as her dissertation subject.

SIDDHA PHYSIOLOGY

Physiology is the most fascinating and ancient branch of science. The goal of physiology is to explain the physical and chemical factors that are responsible for the origin, development and progression of life.

Human physiology mainly concerned with the specific characteristics and mechanisms of the human body that make it a living being. The human being is actually an automaton, and the fact that we are sensing, feeling and knowledgeable beings is part of this automatic sequence of life; these special attributes allow us to exist under widely varying conditions that otherwise would make life impossible.

According to Siddha system of medicine the human body is governed by,

1. 96 Specific thathuvams
2. 7 Udal thaathukkal (Physical Constituents)
3. 14 Vegangal (Reflexes)
4. 6 Suvaigal (Taste)
5. 3 Udal vanmai (Immunity)
6. 3 Udal thee (Body fire)
7. 3 Body Constitutions (Cardinal humours)

In Vedantha Thathuva Kattalai, the 96 thathuvams were described as,

“உறுதியாகப் பூதநதி யோரைந்தாம்
உயர்கின்ற பொறியைந்து புலனைந்தாம்.....”

Panchaboothams (Five basic elements)

Mann (Earth), Neer (Water), Theyu (Fire), Vayu (Air) and Aagayam (Ether).

Gnanenthiriyam– 5 (Five sense organs)

Sevi (Ear), Mei (Skin), Kann (Eye), Vaai (Tongue) and Mookku (Nose).

Gnanavidayam -5 (Functions of the five sense organs)

Saptham (Hearing), Sparisam (Touch), Roopam (Vision), Rasam (Taste) and Gantham (Smell).

Kanmenthiriyam -5 (Five motor organs)

Vaai (Mouth), Kaal (Lower Limb), Kai (Upper Limb), Eruvaai (Anal Orifice) and Karuvaai (Reproductive Orifice).

Kanmavidayam- 5 (Functions of the five motor organs)

Vasanam (Speaking), Kamanam (Walking), Dhaanam (All manucures), Visarkam (Defaecation) and Aanantham (Reproductive function).

Anthakaranam - 4 (Intellectual functions)

Manam (The mind or the thinking factor), Puththi (Knowledge, the power of discrimination), Siddham (Achievement factor) and Agankaram (The deciding factor).

Arivu - 1 (Analysing factor)

Naadi - 10 (Nerves)

Idakalai, Pinkalai, Suzhumunai, Siguvai, Purudan, Gaandhari, Aththi, Alambudai, Siguvai, Sangini and Gugu.

Vayu – 10

Uyirkkaal (Praanan), Keelnokkukkaal (Abaanan), Paravukkaal (Viyaanan), Melnokkukkaal (Udhaanan), Nadukkaal (Samaanan), Vaanthikkaal (Naagan), Vizhikkaal (Koorman), Thummikkaal (Kirukaran), Kottavikkaal (Devathathan) and Veengukkaal (Dhananjeyan).

Aasayam – 5

Amarvaasayam (Stomach), Pagirvaasayam (Liver and Small Intestine), Salavaasayam (Kidney and Urinary Bladder), Malavaasayam (Large Intestine and Rectum) and Sukilavaasayam (Testes or Ovary).

Kosam – 5 (Five major system)

Annamayakosam (Digestive system), Praanamayakosam (Respiratory system), Manomaya kosam (Cardiovascular system), Vingnanamaya kosam (Nervous system) and Anandhamaya kosam (Reproductive system).

Aaatharam -6 (Six vital centres)

Moolaathaaram (Perineal region), Swaathitaanam (Umbilical region), Manipooragam (Epigastric region), Anaagatham (Cardiac region), Visuthi (Neck region) and Aaakinai (Glabellar region).

Malam -3 (Principles of moral evil)

Aanavam, Kanmam and Maayai.

Mandalam – 3

Gnayiru Mandalam, Thingal Mandalam and Agni Mandalam.

Thodam – 3 (Humours)

Vali, Azhal and Iyam.

Eedanai – 3 (Physical bindings)

Porul patru, Puthalvar patru and Ulaga patru.

Gunam – 3 (Characters)

Sathuva gunam, Raso gunam and Thamo gunam.

Vinai – 2 (Deeds)

Nalvinai (Good deed) and Theevinai (Bad deed).

Raagam – 8 (Passions)

Kaamam (Desire), Krotham (Hatred), Ulopam (Stingy), Moham (Lust), Madham (Pride), Maarchariyam (Internal conflict), Idumbai (Mockery) and Agankaram (Ego).

Avathai – 5 (Status of the soul)

Nanavu (Wakefulness), Kanavu (Dream), Urakkam (Sleep), Paerurakkam (Stupor) and Uyirpadakkam (Stage of samaathi).

UDAL THAATHUKKAL – 7 (PHYSICAL CONSTITUENTS)

Udal thaathukkal represents the 7 physical constituents of the body. It is responsible for the nourishment and development of the body. The intake of diet plays an important role in the formation of these physical constituents. Human's immune mechanism is mainly based on these constituents.

1. Saaram (Chyle) - Responsible for growth and development of the body. It enriches the blood.
2. Senneer (Blood) - Responsible for intellectual nourishment, strength and helps in determining the colour and sound of the body.
3. Oon (Muscle) - It gives proper shape to the body structures in accordance to their activity and nourishes the bone.
4. Kozhuppu (Fat) - Maintains the lubrication of all tissues and helps in their proper function.
5. Enbu (Bone) - Give posture to the body. Supports and protects the internal organs and it is basic for all movements of the body.

6. Moolai (Bone marrow) - It occupies the bony spaces and nourishes them. It also imparts strength to them.
7. Sukkilam or Suronitham - Responsible for reproductive (Sperm or Ovum) function in both male and female.

UYIRTHAATHUKKAL- 3 (CARDINAL HUMOURS)

The 3 Cardinal humours are formed by the combination of

Idakalai	+	Abaanan	-	Vali
Pinkalai	+	Praanan	-	Azhal
Suzhumunai	+	Samaanan	-	Iyam

The predominant function of these humours in human body are,

வாதமாய்ப் படைத்து (Creation)

பித்தவன்னியாய் காத்து (Protection)

சேட்பசீதமாய் துடைத்து (Destruction)

Vali, Azhal and Iyam govern all the biological, psychological, physio- pathological function of the body. They act as basic constituents and protective barrier for the body in its normal physiological condition.

Table-1
Physiological Functions of Humours

Vali (Air + Space)	Azhal (Fire + Water)	Iyam (Water + Earth)
Movement, Breathing, Natural urges, Transformation of tissues, Motor functions, Sensory functions, Secretions, Excretions, Fear, Anxiety.	Body heat, Temperature, Digestion, Perception, Hunger, Thirst, Intelligence, Anger.	Stability, Energy, Lubrication, Forgiveness, Attachment, Accumulation, Holding, Possessiveness.

VEGANGAL – 14 (REFLEXES)

The vegangal represents the natural reflex, excretory, protective and preventive mechanisms. It involves psycho neuromuscular function of the body. The 14 vegangal are:

Abaanan, Thummam, Siruneer, Malam, Kottavi, Pasi, Neervetkai, Erumal, Ellaippu, Thookam, Vaanthi, Kanneer, Sukkilam and Swaasam.

SUVAIGAL – 6 (TASTE)

Suvaigal has related to Panchaboothams and Uyirthaathu. The stamina and built of the body is mainly based on one's intake of balanced diet. The 6 taste plays an important role in it.

Table-2
Relation between Suvai, Bootham and Uyir Thaathu

Suvai	Bootham	Increased Uyirthaathu
Inippu (Sweet)	Water + Earth	Iyam
Pulippu (Sour)	Fire + Water	Azhal,Iyam
Uppu (Salt)	Fire + Earth	Azhal,Iyam
Kaippu (Bitter)	Ether + Air	Vali
Kaarppu (Pungent)	Air + Fire	Vali,Azhal
Thuvarppu (Astringent)	Air + Earth	Vali,Iyam

Any increased or decreased intake of these tastes alter the basic ratio of Uyirthaathukkal and shows changes in Udalthaathukkal.

UDAL VANMAI- 3 (TYPES OF IMMUNITY)

It is of three types namely Iyarkai vanmai, Seyarkai vanmai and Kaala vanmai.

UDAL THEE- 3 (BODY FIRES)

It is of four types namely Samaagni, Vishamaagni, Deekshnaagni and Mandhaagni.

SIDDHA PATHOLOGY

“நோய்நாடி நோய்முதல் நாடி அதுதணிக்கும்

வாய்நாடி வாய்ப்பச் செயல்”

- திருக்குறள்

For the exact diagnosis and to treat the ailment properly, a sound knowledge about Noi Naadal is essential.

Noi (Pathos) - Disease

Naadal (Logos) - Study

Pathology is thus scientific study of structure and function of the body in disease. It deals with causes, effects, mechanisms and nature of disease.

DISEASE

உடலுடன் பிணைந்த உயிர் அனுபவிக்கும் இன்ப உணர்ச்சிக்கு மாறான உணர்ச்சியே பிணி.

Thus disease is loss of ease to the body.

ETIOLOGY

“மிகினும் குறையினும் நோய்செய்யும் நூலோர்

வளிமுதலா எண்ணிய மூன்று”

- திருக்குறள்

The human body is governed by three cardinal humours namely Vali, Azhal and Iyam. The relative proportion of these humours are responsible for a person's physical, mental qualities and dispositions. Any alterations in

these basic factors results in disease. It can be altered due to various factors such as,

1. Dietary Changes
2. Modified life style
3. Immunological status of the individual
4. Environmental changes
5. Seasonal variations
6. Suppression of reflexes
7. Variations in the 7 physical constituents of the body.
8. Kanma Vinnai (congenital causes)

DIETARY CHANGES

Dietary nutrients should be balanced according to the age, sex, immunological status, seasonal variations and environmental changes.

“இழுவறிந் துண்பான் கணின்பம் பேரனிற்குங்
கழிபே ரிரையான் கணைய”

- திருக்குறள்

Nutritional imbalance is more often a problem, accounting for increased frequency of so many ailments.

The nutrients in diet mainly based upon six taste (Suvaigal) namely Sour, Astringent, Salt, Bitter, Pungent and Sweet. Excessive intake of these taste results in derangement of Thridoshams.

“புனிதுவர் விஞ்சுங்கறி யாற்பூரிக் கும்வாதம்
ஒளி யுவர்கைப் பேறில் பித்துச் சீறும் - கிளிமொழியே
கார்ப்பினிப்பு விஞ்சிற் கபம்விஞ்சு ஞ்சட்டிரதச்
சேரப் புணர் நோயனுக்காதே”

- கண்ணுசாமியம்

Table-3

Excessive intake of taste and Exaggeration of humours

Excessive intake of taste	Exaggeration of humours
Sour, Astringent	Vali
Salt, Bitter	Azhal
Pungent, Sweet	Iyam

Besides, excessive intake of nutrients, skipping of diets also results in disease.

MODIFIED LIFE STYLE

Siddhars had taught so many life style manners to lead a healthy life. They given under the topic **Pini Anuga Vithi** (Preventive laws to avert the disease) as,

“திண்ண மிரண்டுள்ளே சிக்க வடக்காமற்
பெண்ணின்பா லொன்றைப் பெருக்காமல் - உண்ணுங்கால்
நீர்கருக்கி மேர்பெருக்கி நெய்யுருக்கி யுண்பவர்தம்
பேருரைக்கிற் பேரமே பிணி”

- பதார்த்த குண சிந்தாமணி

Avoiding of constipation, retention of urine and excessive sexual desire will prevent disease and also one should taking boiled water, increased intake of skimmed milk, intake of melted ghee also prevent so many diseases.

Any modifications in this life style manners will cause disease.

UDAL VANMAI (Immunological Status of the Individual)

The immunological status also plays an important role in determining the disease. It is classified into three types.

1. Iyarkai Vanmai

This is based on Sathuva, Raso and Thamo gunams and it is the strength which naturally presents in the body.

2. Seyarkai Vanmai

This strength depends upon by protecting the mukkunam based body by taking proper diet, habits and medicine.

3. Kaala Vanmai

This strength is gained by seasonal variations as well as the age of a person.

ENVIRONMENTAL CHANGES

“அண்டத்திலுள்ளதே பிண்டம்

பிண்டத்திலுள்ளதே அண்டம்”

- சட்டமுனி ஞானம்

Any interference in the external environment depicts in man's internal environment. It alter the basic ratio of three humours and also affects the human's defense mechanism and suppresses the immunity resulting in so many ailments.

The ancient people classified the land into 5 types and the people dwelling in these lands have more prevalence to certain diseases.

Kurinji	-	Kaba diseases
Mullai	-	Pitha diseases
Marutham	-	Suits for aboding
Neithal	-	Vatha diseases
Paalai	-	All kind of diseases.

SEASONAL VARIATIONS

Ancient thamizh people classified the annum into six seasons each one consisting of two months. Naturally, during these seasons the three humours namely Vali, Azhal and Iyam shows some seasonal variations in their own character. The alterations in this, results in various diseases of human beings.

Table-4

Seasonal variations and alterations in humours

S. No.	Season	Month	Alterations in 3 humours
1.	Kaar Kaalam	Aavani – Purattasi	Vali ↑↑ Azhal ↑
2.	Koothir Kaalam	Iyppasi – Kaarthigai	Vali — Azhal ↑↑
3.	Munpani Kaalam	Maargazhi – Thai	Azhal —
4.	Pinpani Kaalam	Maasi-Panguni	Iyam ↑
5.	Ilavenir Kaalam	Chiththirai- Vaigaasi	Iyam ↑↑
6.	Mudhuvenir Kaalam	Aani – Aadi	Vali ↑ Iyam —

↑↑ - Exaggerated

↑ - Brisk

— - Stable

SUPPRESSION OF REFLEXES

There are 14 natural reflexes involved in the normal physiological function of human beings. Suppression of these reflexes results in diseases.

Table-5
Suppression of Reflexes and Diseases

S. No.	Reflexes	Diseases
1.	Vatham (Flatus)	Epigastric pain, chest pain, kudal vatham, body ache, constipation, dysuria and indigestion.
2.	Thummal (Sneezing)	Headache, neuritic pain in the sense organs, facial pain and low backache.
3.	Siruneer (Urine)	Retention of urine, urethral ulcer, joint pain, pricking pain in the penis and flatulence.
4.	Malam (Faeces)	Knee joint pain, headache, general weakness, flatulence and pre-dispose to many diseases.
5.	Kottavi (Yawning)	Indigestion, leucorrhoea, abdominal and urinary disorders. If affects all organs and supervenes the pain.
6.	Neervetkai (Thirst)	If affects all organs and supervenes the pain.
7.	Pasi (Hunger)	Exhaustion of all organs, emaciation, syncope, apathetic face and joint pain.
8.	Erumal (Cough)	Increased cough, foul breath and cardiac disease.
9.	Illaiippu (Exhaustion)	Syncope, urinary disorders and rigor.
10.	Nithirai (Sleep)	Headache, pain in the eyes, deafness and slurred speech.
11.	Vaanthi (Vomiting)	Itching and symptoms of increased pitham.
12.	Kanneer (Tears)	Sinusitis, headache, eye diseases and chest pain.
13.	Sukkilam (Semen)	Joint pain, dysuria, fever and chest pain.
14.	Swaasam (Breathing)	Cough, abdominal discomfort and anorexia.

THE ALTERED CHARACTERS OF THREE HUMOURS

The inequilibrium state of three humours namely Vali, Azhal and Iyam is the main reason for the occurrence of disease.

Table-7

Altered characters of three Humours

S. No.	Humour	Exaggerated character	Diminution character
1.	Vali	Emaciation, Blackish colouration of the body, Desire to take hot food, Tremors, Constipation, Abdominal distension, Insomnia, Weakness, Weakness of sense organs, Giddiness, Sluggishness.	Stiffness, Diminution of voice, Impaired intellectual function, Semi consciousness, Difficulty in doing any kind of work, Paleness and coolness of the body, Excessive salivation, Heaviness of the body, Excessive sleep, Abdominal distension.
2.	Azhal	Yellowish discolouration of skin, eye, urine and faeces, polyphagia, polydypsia, burning sensation all over the body, insomnia.	Decreased appetite, cold, pallor, symptoms associated with defective growth of Iyam.
3.	Iyam	Excessive salivation, reduced appetite, cough, dyspnoea, heaviness of the body, whiteness of the body, chillness of the body, increased sleep, sluggishness.	Giddiness, swelling of the joints and prominence of bone. Iyam dissolved in lungs, Excessive sweating, palpitation.

VARIATIONS IN THE SEVEN UDAL THAATHUKKAL

When the normal ratio of the three humours are affected, it immediately shows changes in the natural physiological function of Udal thaathukkal.

Table-6

Variations in the seven udal thaathukkal

S. No.	Udal Thaathukkal	Increased features	Decreased features
1.	Saaram (Chyle)	Features related with decrease in Iyam and loss of appetite.	Dryness of skin, loss of weight, tiredness and the functions of sense organs are diminished.
2.	Senneer (Blood)	Boils and tumours in different parts of the body, splenomegaly, pain, hypertension, redness of the eyes, leprosy and jaundice.	Desire for cold things, dryness, discolouration and paleness of the skin.
3.	Oon (Muscle)	Tumours or extra growth around the neck, face, abdomen, thigh and genitalia.	Lethargy of 5 sensory organs, pain in the joints, loss of subcutaneous fat.
4.	Kozhuppu (Fat)	Identical to increased features of Oon, tiredness, dyspnoea on exertion.	Splenomegaly, loin pain, emaciation.
5.	Enbu (Bone)	Excessive ossification and dentition.	Weak bone, pain in the joints, splitting of hair and nails.
6.	Moolai (Bone marrow)	Heaviness of the body and eyes, swelling of smaller joints of hand and feet, oliguria, non- healing ulcers.	Osteoporosis and blurred vision.
7.	Sukkilam/ Suronitham (Sperm or Ovum)	Excessive sexual desire, urinary calculi.	Pain in the genitalia and sterility.

KANMA VINNAI (CONGENITAL CAUSES)

The formation of embryo plays a key role in determining the health of an individual.

“பேறுயிளமை யின்பம் பிணிமுப்பு சாக்காடு
ஆறுங்கரு விலமைப்பு”

- கண்ணுசாமியம்

According to Siddha concept, the three Kanma Vinnai namely Aanavam, Maayai and Kanmam are determined during the time of formation of embryo and also, if there is any derangements of Vali, Azhal and Iyam humour among the parents during sexual intercourse it also affects the formation of embryo and results in congenital diseases.

பிணியறி முறைமை (DIAGNOSTIC METHODS)

The diagnostic tool adopted to evaluate a disease in Siddha system of medicine is termed as **Piniyari Muraimai**. It is based on the following principles.

1. Poriyaal Arithal
2. Pulanaal Arithal
3. Vinaathal

Poriyal Arithal means diagnosing through the five organs of perception namely Skin, Tongue, Eyes, Nose and Ears.

Pulanal Arithal means diagnosing through the five object of senses namely Skin sensation, Taste, Vision, Smell and Auditory sensation.

Vinaathal is a method of interrogating the complaints of the patient from his own words or from his thoothuvan (attendants).

The methods including all the above falls under,

ENNVAGAI THERVUGAL

Theraiyar mentioned the 8 types of diagnostic tools as,

“மெய்க்குறி நிறந்தொனி விழிநா விருமலம் கைக்குறி”

- தேரையர்

In Agathiyar Vaidhya Vallathi – 600, Ennvagai Thervugal mentioned as,

“தொகுக்கலுற்ற அட்டவிதப் பரீட்சை தன்னை
துலக்க முறும் பண்டிதரே தெளிவாகப்
பகுக்கரிய நாடியை நீ பிடித்துப் பாரு
பகர்கின்ற வார்த்தைப் பார் நாவைப் பாரு
வகுக்கரிய தேகமெனத் தொட்டுப் பாரு
வளமான சரீரத்தின் நிறத்தைப் பாரு
சகிக்கரிய மலத்தைப் பார் சலத்தைப் பாரு
சான்றத விழி தனைப் பார்த்து தெளிவாய் காணே”

1. Naa (Tongue)
2. Niram (Colour)
3. Mozhi (Speech)
4. Vizhi (Eye)
5. Sparisam (Sense of touch)
6. Malam (Stool)
7. Moothiram (Urine)
8. Naadi (Pulse)

On accessing the variations in the above said tools, the physician can find out the derangements of three humours and come to a proper diagnosis.

1. Naa (Tongue)

By the examination of tongue the following features are noted.

Colour, Size, Shape, Coating, Anomalies, Surface, Movements, Local lesions, Ulcers, Fissures, Vesicles, Dryness, Moisture, Deviation of tongue, Pigmentation, Small tongue – Microglossia, Large tongue – Macroglossia.

2. Niram (Colour)

Pallor, Yellowish, cyanosis, hyperpigmentation, hypopigmentation, contusions could be noted.

3. Mozhi (Speech)

The volume, clarity and any disturbance in speech are to be noticed.

4. Vizhi (Eye)

Here the colour change, lacrimation, visual disturbances are to be noted. The nature of eye brow and eye lids are also to be noted.

5. Sparisam (Sensation)

Temperature of the Skin, Smoothness, Dryness, Scaling, Swelling, Tenderness, Sweating, Any abnormal growths, Internal organ enlargements, Thickening of nerves, Varicosity of veins, Cutaneous changes, Subcutaneous nodules should be find out.

6. Malam (Stool)

The colour, odour, froth, quantity, consistency of the stool and presence of any abnormal constituents such as blood, parasites etc., are taken as diagnostic criteria.

7. Moothiram (Urine)

The diagnostic method by examining urine is of two types.

1. Neer kuri and
2. Nei kuri

1. Neerkuri

Here the Niram(Colour), Manam(Smell), Nurai(Frothy Nature), Edai(Specific gravity) and Enjal(Quantity) of the voided urine is noted.

2. Neikuri

According to Theraiyar,

“அருந்துமா றிரதமும் அவினோதமதாய்
அ.:கல் அலர்தல் அகலவூன் தவிர்ந்தழற்
குற்றளவருந்தி உறங்கி வைகறை
ஆடிக்கலசத் தாவியே காது பெய்
தொருமுகூர்த்தக் கலைக்குட்படு நீரின்
நிறக்குறி நெய்க்குறி நிருமித்தல் கடனே”

To see Neikuri, before collecting the urine, the patient is asked to take a balanced diet and have a good sleep. After waking up from the bed in the early morning, the first voided urine is collected in a clean glass container and examined within one hour. A drop of gingely oil is to be dropped in the urine and seen under direct sunlight. By this method, the character of three humours is accessed.

The character of **Vatha neer**

“அரவென நீண்டின.:தே வாதம்”

When the drop of oil spreads like a serpent it indicates derangement of Vata.

The character of **Pitha neer**

“ஆழி போல் பரவின் அ.:தே பித்தம்”

If it spreads like a ring it denotes derangement of Azhal.

The character of **Kaba neer**

“முத்தொத்து நிற்கின் மொழிவதென் கபமே”

If the oil remains like a pearl it denotes the derangement of Iyam.

The character of **Thontha neer**

“அரவிலாழியும் ஆழியில் அரவும்

அரவில் முத்தும் ஆழியில் முத்தும்

தோற்றில் தொந்த தோடங் களாமே”

If the dropped oil shows a combination of two shapes it indicates

Thontha thodam.

8. Naadi (Pulse)

It is a unique diagnostic method in Siddha system of medicine.

It is responsible for the existence of life. The three humours namely

Vali, Azhal, and Iyam are in the ratio of 1: ½: ¼.

“வழங்கிய வாதம்மரத்திரை யொன்றாகில்

தழங்கிய பித்தந்தன்னிலரை வரசி

அழங்குங்கபந் தானடங்கியே காலோடில்

பிறங்கிய சீவர்க்குப்பிச கொன்றுமில்லையே”

- குணவாகடம்

Any alterations, in these basic ratio results in disease.

AIM AND OBJECTIVES

Nowadays due to altered dietary habits and modified life style people suffered by many diseases. It is the mere responsibility of a physician to cure the disease and to create a healthy society.

The primitive aim of the author to study about **Anda vadham** is, to diagnose the disease through Siddha parameters with the help of modern parameters and to create awareness among the people to prevent the disease.

Anda Vadham is one of the important disease of the abdominal organs in which the patients are disturbed both functionally and emotionally. To evaluate the disease is important because if it is not diagnosed and treated properly it may leads to various complications.

The study mainly made out, to rule out the pathogenesis of this disease on the basis of etiology, genetic factors, nutritional status, dietary habits, life style and socio-economic status.

To achieve the aim in a successful manner the specific objectives have been utilized.

1. To know about the disease in detail it is necessary to collect the evidences found in Siddha literature regarding **Anda Vadham**.
2. To evaluate the Siddha basic physiology is needful.
3. To review the altered mukkutram and to establish the disease scientifically, Siddha parameters have been used such as Ennvagai

Thervugal, Manikkadai Nool and correlating the disease with Nilam, Kaalam and Sothidam is helpful.

4. For better diagnosis, thorough manual examination of the patient is needed.
5. To support the study of **Anda Vadham** modern parameters have been utilized.
6. The study is concluded by defining the aggravating factors which leads to complications and finally the study dealt with the preventive measures.

ELUCIDATION ABOUT ANDA VADHAM

According to the literature **Thanvanthiri Vaithiyam, Anda Vadham** has been described under **Uthara Roga Nithanam** as,

“கொண்டங்கு குடலிற்றங்கிக் குறைந்தொரு விதையிற் றோன்றி
மண்டியே வலித்து வீங்கி மறுவிரை தனிலுந் தோன்றும்
பண்டிலிலொத்து வாக்கும் பகர்ந்திடு மண்டவாத
மண்டரு முனிவர் தாமு மறியவே யுரைக்க லுற்றார்”

- தன்வந்திரி வைத்தியம் இரண்டாம் பாகம்

பாடல் எண் 120

Meaning of the words in this poem

அண்டம்	: Scrotum
வாதம்	: Energy or power that prevails all over the body and keeping the tissues in good condition.
கொண்டங்கு	: At that place
குடலிற்றங்கி	: Accumulation of Vayu in the intestines
குறைந்தொரு	: Atleast one side (unilateral)
விதையிற் றோன்றி	: Occurs in the scrotum
மண்டியே	: Accumulation
வலித்து	: Physical pain
வீங்கி	: Swelling
மறுவிரை	: Other side of the scrotum (bilateral)

தோன்றும்	: Will occur
பண்டி	: Abdomen
ஒத்து வாங்கும்	: Reducing to an equality

Description

“கொண்டங்கு குடலிற்றங்கிக் குறைந்தொரு விதையிற் றேரன்றி”

Increased Vayu accumulation in the intestines and descend of the intestines into the scrotum. Initially it occurs on one side of the scrotum.

“மண்டியே வலித்து வீங்கி மறுவிரை தனிலுந் தேரன்றும்”

Pain and swelling of the scrotum. Later the same signs and symptoms occur on the other side of the scrotum also.

“பண்டிலிவெத்து வரங்கும் பகர்ந்திடு மண்டவாத

மண்டரு முனிவர் தாம மறியவே யுரைக்க லுற்றார்”

This line indicates that the hernial contents reduce back into the abdominal cavity. All these represents the clinical features of the disease Anda Vadham.

The Thanvanthri's lines are summarized as follows,

Increased Vayu accumulates in the intestines and the increased intra-abdominal pressure descend the intestine into the scrotum. Initially it occurs unilaterally. There is pain and swelling in the scrotal region. Later the same features occurs on the other side of the scrotum. The descended intestine then reduce back into the abdominal cavity.

These are the clinical features of the disease **Anda Vadham**.

DETAILED PATHOLOGICAL VIEW

OF THE DISSERTATION TOPIC

SIDDHA ASPECT

In this dew drop of research work on the topic **Anda Vadham** the author try to explain the pathological view through Siddha aspect which helps in the diagnosis of the disease.

The disease **Anda Vadham** is mentioned in **Thanvanthiri Vaidhiyam** under **Uthara Roga Nithanam** (Abdominal Diseases).

Uthara Rogam (Abdominal Diseases) are caused by the following factors:

“மனமுறவுண்கையாலு மகிழ்ந்த வுண் குறைதலாலும்
கனமலஞ் செறிந்து நின்று கழற்றுத லிலாமலாலுந்
தன்மிகத் தேடலுற்றுத் தானுரு மேககத்தாலுஞ்
சினமிக வருகையாலுஞ் சேர்ந்திடு முதரநோயே”

- தன்வந்திரி வைத்தியம் முதல் பாகம்

- ❖ Excessive intake of diet
- ❖ Reduced intake of diet
- ❖ Constipation
- ❖ Excessive sexual desire
- ❖ Anger
- ❖ Straining on micturition

- ❖ Doing heavy works after full meals
- ❖ Lying in chill floor
- ❖ Sleeping in improper position.

All these factors pave a way increased Vayu accumulation in the abdomen and results in abdominal diseases.

“பிணியினுற் பத்தியைப் பேசுவன் பிணிமுதல்
வாதபித் தங்கப மன்மந்திரி தந்திரி

.....
.....”

- தேரையர் காப்பியம்

According to Siddha Medicine theory, the cardinal humour Vali is considered as the chief Administrator and Azhal and Iyam as sub-ordinators.

The derangement of Vali affects the natural characters of the other two humours Azhal and Iyam respectively.

ALTERED UYIRTHAATHUKKAL IN ANDA VADHAM

“கொண்டங்கு குடலிற்றங்கிக் குறைந்தொரு விதையிற் றோன்றி”

In Anda Vadham, the cardinal humour **Vali** is predominantly affected. Due to deranged Vali increased vayu accumulates in the intestines, since the dwelling place of Vali is in the intestines and below the naval region it tends to accumulate there.

“செப்பு முந்தி சிதையும் வாதநிலை”

The reason for increased vayu is,

“மந்தமலாகது வாயு வராகது”

Mantham represents indigestion of the food. It occurs as follows,

During derangement of Vali, the digestive fire **Samaana Vayu** is affected and it combines with increased Iyam and results in improper digestion(mantham). The Mantham state is the character of **increased Iyam** and **decreased Azhal** humours. Thus the deranged Vali affects the other two humours respectively.

Since the Samaana Vayu (Nadukkaal) is deranged in Anda Vadham, it can not able to maintain the equilibrium state of other vayus like Praanan,Udhaanan and Kirukaran which plays an important role in digestion. In turn, the Abaana Vayu(Keelnokkuk Kaal) is also deranged and hence it's basic physiological function, expulsion of vayus is affected. All these, results in **increased Vayu** accumulation in the intestines.

Thus due to enormous amount of Vayu accumulation in the intestines, the viscus become very weak and it descends from its original position into the scrotum.

“மண்டியே வலித்து வீங்கி மறுவிரைதனிலும் தேன்றும்”

The increased Vayu produces localized pain and swelling of the scrotum which is the deranged character of Vali.

“பண்டிலிலொத்து வாக்கும்”

It represents, the descended intestine reduced into the abdominal cavity.Besides it also indicates the uncomplicated stage of the disease.

ALTERED UDAL THAATHUKKAL IN ANDA VADHAM

In Anda Vadham the **Udal thaathukkal** shows their **decreased** character.

Saaram (Chyle)

"வாதமலாது மேனி கெடாது"

Generally Vali gives encouragement to mind and gives co-ordination to seven Udal thaathukkal. In Anda Vadham, Vali is deranged and it depicts in Saaram and results in weakness of the abdominal muscles.

Senneer (Blood and its fluids)

The blood and its fluids affords strength to the tissues and organs. In Anda Vadham the senneer attains its decreased character and results in abdominal muscle weakness.

Oon (Muscle)

The Vali humour helps in keeping the tissues in good condition. When it is deranged, it depicts in Oon which is responsible for the proper shape of the organs in accordance to their activity. Thus in Anda Vadham, the normal anatomical position of the intestines is not maintained and it is descended in to the scrotum.

Kozhuppu (Fat)

In Anda Vadham, the derangement of Vali decreases the Kozhuppu thaathu and results in weakening of the abdominal musculature.

Thus the Udal thaathukkal decreased in their basic character and shows changes in Anda Vadham.

DETAILED PATHOLOGICAL VIEW OF THE

DISSERTATION TOPIC

MODERN ASPECT

In modern aspect the pathological view of Anda Vadham is described as follows,

“கொண்டங்கு குடலிற்றங்கிக் குறைந்தொரு விதையிற்றோன்றி”

This line indicates **increased Vayu accumulation** in the intestines and the **descend of the intestines** into the scrotum.

The pathology of descend of the intestines is due to,

Generally, the abdominal wall and the internal viscera are covered by an extensive serous membrane, the peritoneum.

The anterior abdominal wall is musculo-fibrous. It is firm and elastic. The firmness provides protection to the abdominal viscera and the elasticity allows expansion of the hollow viscera.

The posterior abdominal wall is osseo-musculo fascial and is rigid. It provides support and nutrition to the abdomen organs by the attachment of various peritoneal folds.

The main action of the muscles of the anterior abdominal wall is, it retains the viscera in position. This is achieved by the tone of the muscles.

MUSCLE TONE

The muscle fibers always maintain a state of slight contraction with certain degree of vigor and tension. This property of muscle is called **tone or tonus**.

The smooth muscles themselves control the tone. They are supplied by both sympathetic and parasympathetic nerves, which antagonize each other and control the activities of smooth muscles. However, the tone of the muscle is independent of the nerve fibers. Sometimes, the tonic contraction occurs due to the action of some hormones.

Stress – Relaxation of Smooth Muscle

One of the important characteristic of smooth muscle, especially the visceral unitary type of smooth muscle of many hollow organs, is its ability to return to nearly its original force of contraction, seconds or minutes after it has been elongated or shortened.

A sudden increased volume due to any cause in the abdominal cavity stretch the smooth muscle in the abdominal wall which causes and immediate large increase in pressure in the abdominal cavity. However, during the next 15 seconds to a minute or so, despite continued stretch of the abdominal wall, the pressure returns almost exactly back to the original level. Then, when the volume is increased by another step, the same effect occurs again.

Conversely, when the volume is suddenly decreased, the pressure falls very low at first but then rises back in another few seconds or minutes to or near to the original level. These phenomena are called stress-relaxation and reverse stress-relaxation.

Their importance is that, except for short periods of time, they allow a hollow organ to maintain about the same amount of pressure inside its lumen. In long-term, large changes in volume will occur.

The descend of the intestines is mainly due to

When there is any factor which increases the intra-abdominal pressure for a prolonged period, the abdominal musculature is highly stretched and it weakens the muscles and its aponeuroses and the tonicity of the muscle is weakened. So the position of the viscerae are not retained in position.

Besides, the increased intra-abdominal pressure also compresses the internal viscerae (the intestines) and all these reasons are responsible for the descend of the intestines from its original anatomical position.

The role of inguinal canal in descend of the intestine

Under normal conditions, the inguinal canal plays a defense role. Since the canal is oblique in direction, when the intra-abdominal pressure is increased the posterior wall of the canal is pushed forwards and comes in contact with the anterior wall. Thus the canal is obliterated like a flap-valve.

Opposite the deep ring, the anterior wall of the canal is strengthened by the fleshy fibres of the internal oblique muscle and opposite the

superficial ring the posterior wall is strengthened by the conjoint tendon and reflected part of the inguinal ligament.

The arched fibres of the internal oblique and the transversus act as demi-sphincters in increased intra abdominal pressure and obliterate the canal.

Especially in males, the cremaster muscle contracts during increased intra-abdominal pressure and pulls the testes towards the superficial ring, so the outlet of the canal is closed like a plug.

But certain conditions which causes raised intra-abdominal pressure this shutter mechanism is failed and it paves way for a weak abnormal opening.

So the already descended intestines pass through this abnormal opening.

The line also indicates that the intestines descends into the scrotum. This is because the scrotum is the downward prolongation of the anterior abdominal wall. The skin of the scrotum is thin and transparent and elastic. So it easily allows distensions. For this reason the intestines distended into the scrotum and lodges in it.

The descend of the hernial sac into the scrotum indicates the features of **Complete Inguinal Hernia**. The line also mentions the signs and symptoms which initially occur on one side.

“மண்டியே வலித்து வீங்கி மறுவிரை தனிலுந் தோன்றும்”

It indicates **pain** and **swelling of the scrotum**. Later the above said signs and symptoms occur on the other side also.

In this disease, the reason for pain is overdistension of the scrotum. Extreme overfilling of a hollow organ results in pain, presumably because of overstretch of the tissues themselves. Besides, due to dragging of mesentery also produces pain.

PHYSIOLOGY OF PAIN

Pain is an unpleasant sensation and emotional experience associated with or without tissue damage. In general, the viscera have sensory receptors for no other modalities of sensation besides pain. Any stimulus that excites pain nerve endings in diffuse areas of the viscera causes visceral pain.

VISCERAL PAIN

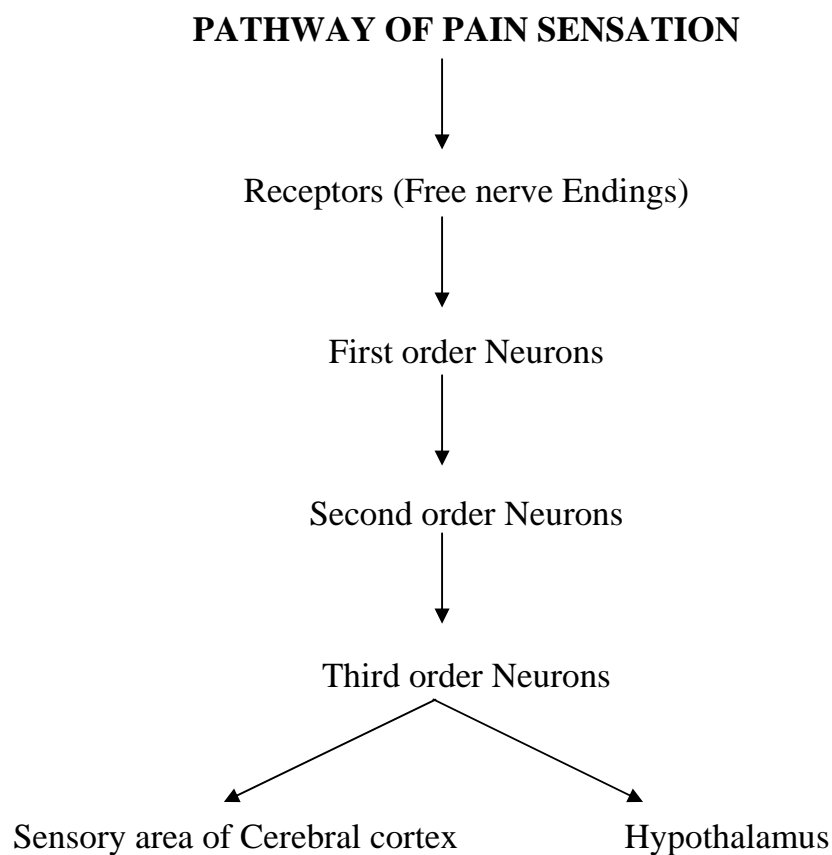
Pain from viscera is unpleasant. It is poorly localized.

CAUSES FOR VISCERAL PAIN

1. Ischaemia
2. Chemical stimuli
3. Spasm of hollow organs and
4. Overdistension of hollow organs

PATHWAY OF PAIN SENSATION FROM VISCERA

The pain sensation from the scrotum is transmitted by Sympathetic nerves.



In this mechanism pain is felt in the scrotal region.

CAUSE FOR SWELLING

Swelling is an abnormal enlargement or increase in volume, associated with accumulation in the tissue of a protein-containing exudate.

In complete inguinal hernia due to laxity of the scrotal skin and its dependent position the scrotal swelling is common because when the herniated sac accumulates in the cutaneous bag (scrotum), it is distended and thus the swelling occurs.

“பண்டிலி லொத்து லாங்கும்”

This line indicates the reducible character. It meant that the contents (intestines) can be returned back into the abdominal cavity, but the sac remains in its position. It indicates the **uncomplicated stage** of the disease.

The clinical features of Anda Vadam,

1. Descend of the intestines into the scrotum-Both unilateral and bilateral sides.
2. Pain and swelling of the scrotum
3. Reducibility of the intestines into the abdominal character.

All these features clearly depicts the clinical features of **Complete Inguinal Hernia**.

REVIEW OF LITERATURE

The same topic Anda Vadham is mentioned in various literatures. In the literature **Pararasa Sekaram, Anda Vadham** is mentioned under – Vadharoga Nithaanam as,

“உதரத்தில் வாயு மண்டி யூதியே யடைசிக் குத்திக்
கதமுற மலச லத்தைக் கட்டியே யுவாதி யாகும்
திதமுறப் பீசந் தன்னிற் சேரவே யிறங்கு மேன்கால்
இதமறக் கடுக்கு நாரி யேறிடு மண்ட வாதமே”.

The clinical features are,

- ❖ Vayu accumulates in the intestines
- ❖ Abdominal distension
- ❖ Constipation
- ❖ Retention of urine
- ❖ Descend of the intestines into the scrotum
- ❖ Pain in the scrotum

In the literature **Theraiyar Kaapiyam**, the same features of **Anda Vadham** is mentioned under **Vidhai Noi (Scrotal Diseases)** under the heading **Kudal Andam**. Here, it is mentioned that the increased Vayu is the cause for Anda Vadham and the increased Vayu is due to the following factors:

1. The diet which increases the Vali humour
2. Lifting heavy weights

3. Strenuous exercises
4. Horse riding
5. Chilled water bath
6. Suppression of the reflexes.

In Yugimuni Vaidhiya Kaviyam – 1000

அண்டவாதத்தின் குணம்

“மெத்தவே வாதம் துய்த்து விரைதனில் ஊதிக் கொண்டு
பத்தவேமரக்கால்போலும் பரிந்திடும் கிரிச்சிகாட்டும்
குத்துமேகுத்திக்காட்டிக் குடலதுபிறட்டிக்கொள்ளும்
மற்றிதுசொன்னோம் அண்டவாதத்தின்வகையி தாமே”

This Poem also depicts the same clinical features of Anda Vadham.

All these literature evidences mentioned that the increased Vayu is the reason for Anda Vadham and produce the pathological changes in the abdomen and the scrotum.

To support my study, in **Pararasasekaram** the derangement of Vali characters is mentioned as,

வாதத்தினாற் றோற்றுவன

“வாதமே கதித்த போது வாயவு மெழுப்பி மீளும்
வாதமே யிரும வாகித் தொடர்ந்திடுஞ் சன்னி வாதம்
போதமே செய்கி ராணி பெருவயி றுதர தோஷம்
போதவே தோன்று மென்று பொருந்தவே முனிவர் சொன்னார்”

- பரராசசேகரம் வாதரோக நிதானம்

1. Increased Vayu
2. Cough
3. Sanni Vadham
4. Dysentry
5. Ascites and
6. Abdominal diseases.

Hence Saint Thanvanthiri mentioned the disease Anda Vadham under Uthara Roga Nithanam (Abdominal Diseases) which results due to exaggeration of the Vali humour.

The altered diet habits and modified life style manners are mainly responsible for the derangement of humours in this disease.

THEORETICAL VIEW OF THE DISSERTATION TOPIC MODERN ASPECT ANATOMY

ABDOMEN AND ITS WALLS

The abdomen is a part of the trunk below the diaphragm. It contains a cavity which is subdivided by the plane of the pelvic inlet into an upper part, the abdomen proper, and a lower part known as the pelvic cavity.

The abdominal wall and the contained viscera are covered by an extensive serous membrane, the peritoneum. Histologically, it is composed of an outer layer of fibrous tissue which gives strength to the membrane and an inner layer of mesothelial cells which secrete a serous fluid which lubricates the surface, thus allowing free movements of viscera.

The peritoneum is in the form of a closed sac which is invaginated by a number of viscera. As a result the peritoneum is divided into,

- (1) An outer or parietal layer
- (2) An inner or visceral layer, and folds of peritoneum by which the viscera are suspended.

PARIETAL PERITONEUM

1. It lines the inner surface of the abdominal and pelvic walls and the lower surface of the diaphragm. It is loosely attached to the walls by extraperitoneal connective tissue and can, therefore, be easily stripped.

2. Embryologically, it is derived from the somatopleural layer of the lateral plate mesoderm.

3. Its blood supply and nerve supply are the same as those of the overlying body wall. Because of the somatic innervation, parietal peritoneum is pain sensitive.

VISCERAL PERITONEUM

1. It lines the outer surfaces of the viscera, to which it is firmly adherent and cannot be stripped. In fact it forms a part and parcel of the viscera.

2. Embryologically, it is derived from the splanchnopleural layer of the lateral plate mesoderm.

3. Its blood supply and nerve supply are the same as those of the underlying viscera. Because of the autonomic innervation visceral peritoneum is pain insensitive.

FOLDS OF PERITONEUM

1. Many organs within the abdomen are suspended by folds of peritoneum. Such organs are mobile. The degree and direction of mobility are governed by the size and direction of the peritoneal fold. Other organs are fixed and immobile. They rest directly on the posterior abdominal wall, and may be covered by peritoneum on one side. Such organs are said to be retroperitoneal. Some organs are suspended by peritoneal folds in early embryonic life, but later become retroperitoneal.

2. Apart from allowing mobility, the peritoneal folds provide pathways for passage of vessels, nerves and lymphatics.

3. Peritoneal folds are given various names.

i. Large peritoneal folds attached to the stomach are called omenta .

ii. In many situations double layered folds of peritoneum connect organs to the abdominal wall or to each other. Such folds are called ligaments. These may be named after the structures they connect. Other folds are named according to their shape triangular.

PERITONEAL CAVITY

The viscera which invaginate the peritoneal cavity completely fill it so that the cavity is reduced to a potential space separating adjacent layers of peritoneum.

FUNCTIONS OF PERITONEUM

1. Movements of viscera

The chief function of the peritoneum is to provide a slippery surface for free movements of abdominal viscera.

The efficiency of the intestines is greatly increased as a result of the wide range of mobility that is possible because the intestines are suspended by large folds of peritoneum.

2. Protection of viscera

3. Absorption and dialysis

4. Healing power and adhesions

5. Storage of fat

THE GREATER OMENTUM

This is a large fold of peritoneum which hangs down from the greater curvature of the stomach like an apron and covers the loops of intestines to a varying extent.

LESSER OMENTUM

This is a fold of peritoneum which extends from the lesser curvature of the stomach and the first 2cm. of the duodenum to the liver.

THE MESENTERY

The mesentery of the small intestine (or mesentery proper) is a broad, fan-shaped fold of peritoneum which suspends the coils of jejunum and ileum from the posterior abdominal wall.

TRANSVERSE MESOCOLON

This is a broad fold of peritoneum which suspends the transverse colon from the upper part of the posterior abdominal wall.

SIGMOID MESOCOLON

This is a triangular fold of peritoneum which suspends the sigmoid colon from the pelvic wall.

BOUNDARIES OF ABDOMEN

It consists of Roof, Floor, Anterior and Posterior Walls.

Roof

It is formed by the undersurface of the diaphragm. It moves up and down with respiration and alters the intra-thoracic and intra-abdominal pressure.

Floor

The floor of the pelvic cavity is formed by the pelvic diaphragm in the posterior part and by the urogenital diaphragm in the anterior part. It supports the pelvic viscera and regulates the acts of defaecation, micturition and in female parturition.

Anterior wall

It is musculo - fibrous and is formed by three flat muscles and their aponeuroses. On each side of linea alba the anterior wall is strengthened by the **rectus abdominis** and **pyramidalis** within the rectus sheath. Anterior wall is firm and elastic. The firmness provides protection to the abdominal viscera and the elasticity allows expansion of the hollow viscera.

Posterior wall

It is osseo-musculo fascial and is rigid. Retro-peritoneal organs, principal vessels and nerves lie in the posterior wall; posterior wall provides support and nutrition to the abdomen organs by the attachment of various peritoneal folds.

ANTERIOR ABDOMINAL WALL

The **anterior abdominal wall** is limited above by the xiphi - sternum, right and left costal margins, below by the anterior part of the iliac crest, fold of the groin, pubic tubercle, pubic crest and symphysis pubis and on each side separated from the posterior abdominal wall by the downward prolongation of the mid-axillary line.

The anterior wall is firm but elastic and consists of 8 layers from before backwards.

- 1.Skin
- 2.Superficial fascia
- 3.External oblique muscle and its aponeurosis
- 4.Internal oblique muscle and its aponeurosis
- 5.Transversus abdominis muscle and its aponeurosis
6. Fascia transversalis
- 7.Extra-peritoneal tissue and
- 8.Parietal peritoneum.

Opposite the linea alba, the layers are reduced to six in number. Embryologically, the 7th layer of the extra-peritoneal tissue is important because all abdominal viscera virtually lie in this layer; this fact is proved by the coverings received by the testis during its descent.

DESCRIPTION OF DIFFERENT LAYERS

SKIN

It is thinner and more sensitive than the skin of the posterior abdominal wall. The skin presents a number of cleavage lines (Langer's lines). The skin presents two parts, an outer epidermis which is non-vascular and an inner dermis or corium which is highly vascular and presents rich nerve supply.

The skin of the anterior abdominal wall consists of longitudinal groove overlying the linea alba, and a curved groove on each side with the convexity directed laterally which corresponds with the lateral border of the rectus abdominis muscle. A surface depression, the umbilicus, affects the median groove; It is composed of cicatricial tissue and represents remnant of the foetal end of the umbilical cord.

SUPERFICIAL FASCIA

Above a line joining the two anterior superior iliac spines it consists of a single layer. Below that line it splits into superficial fatty layer (Camper's fascia) and deep membranous layer (Scarpa's fascia).

SUPERFICIAL INGUINAL SPACE

It is a potential space in the anterior abdominal wall between the fascia of Scarpa and the aponeurosis of external oblique.

EXTERNAL OBLIQUE MUSCLE

(OBLIQUUS EXTERNUS ABDOMINIS)

Origin

It arises by eight fleshy slips from the outer surfaces and lower borders of the lower eight ribs.

Insertion

The most posterior fibres pass almost vertically downwards and are inserted by fleshy fibres to the anterior half of the outer lip of the ventral

segment of the iliac crest. Its posterior margin is free and forms the anterior boundary of the lumbar triangle.

The remaining fibres pass downwards, forwards and medially, and end in a broad aponeurosis.

INGUINAL LIGAMENT (POUPART'S LIGAMENT)

It is the thickened lower border of the aponeurosis of the external oblique which is folded backwards presenting a grooved upper surface. It measures about 12 cm. to 14cm. in length in the adult.

INTERNAL OBLIQUE MUSCLE (OBLIQUUS INTERNUS ABDOMINIS)

Origin

1. From the lateral two - third of the upper surface of the inguinal ligament.
2. Anterior 2/3 of intermediate lip of the iliac crest.
3. Posterior layer of thoraco lumbar fascia.

Insertion

1. By forming conjoint tendon it is inserted into pubic crest and pectineal line.
2. Forms rectus sheath and insert into the linea alba.
3. Lower 3 or 4 ribs.

Rectus abdominis

It is a long strap muscle, wider above than below.

Actions of the rectus muscles

- ❖ They provide protection to the abdominal viscera from external injury;
- ❖ Compress the abdominal cavity and maintain intra-abdominal pressure and
- ❖ Produce flexion of the vertebral column.

Pyramidalis

Origin – From the symphysis pubis and the pubic crest.

Insertion – By its apex it is inserted into the linea alba, midway between the umbilicus and symphysis pubis.

Nerve supply – From the subcostal nerve.

Action – It is a tensor of the linea alba.

Fibres of the deep layer of external oblique aponeurosis pass downwards and medially as continuation of ipsilateral muscle. On approaching the linea alba, the fibres decussate and separate into superficial and deep sets.

FASCIA TRANSVERSALIS

It is an areolar membrane which lines the inner surface of the transversus muscle and forms an endo-abdominal fascia.

It extends behind the inguinal ligament as the anterior wall of femoral sheath.

ACTIONS OF THE MUSCLES OF THE ANTERIOR ABDOMINAL WALL

- ❖ **Retention-** The muscles retain the viscera in position. This is maintained by the tone of the muscles.
- ❖ **Protection** - They protect the viscera from external injury. This is done mainly by two recti.
- ❖ **Compression** – They increase intra-abdominal pressure and compress the viscera in the act of vomiting, micturition or defaecation. During compression, the diaphragm is pushed upwards helping expiration.
- ❖ **Actions on vertebral column**
 - (a) When muscles of both sides act, lumbar vertebrae are flexed.
 - (b) In unilateral action of the muscles, the trunk is bent laterally producing lateral flexion.
 - (c) When the external oblique of one side contracts simultaneously with the internal oblique of the other side, rotation of the trunk takes place.

INGUINAL CANAL

It is musculo-aponeurotic tunnel, about 4 cm. in length, and extends from the deep inguinal ring to the superficial inguinal ring. The canal is directed downwards, forwards and medially, above and parallel with the medial half of the inguinal ligament.

Peculiarities

1. In female the canal is narrow; hence chance of inguinal hernia is less.

2. In the newborn the canal is directed almost straight forwards, because muscles of the anterior abdominal wall are not properly differentiated.

Contents

1. Spermatic cord in males, or round ligament of uterus in females (entire content).

2. Ilio- Inguinal nerve (partial content). The nerve enters the canal by piercing the internal oblique muscle about 2.5 cm. below and medial to the anterior superior iliac spine. It is situated superficial to the spermatic cord, and leaves the canal through superficial ring. Ilio- Inguinal is a mixed nerve conveying fibres from the ventral ramus of L₁, but after piercing the internal oblique it conveys sensory fibres only.

CONSTITUENTS OF THE SPERMATIC CORD

1. The ductus deferens.
2. The testicular and cremasteric arteries, and the artery of the ductus deferens.
3. The pampiniform plexus of veins.
4. Lymph vessels from the testis.
5. The genital branch of the genitofemoral nerve, and the plexus of sympathetic nerves around the artery to the ductus deferens.
6. Remains of the processus vaginalis.

COVERINGS OF THE SPERMATIC CORD

From within outwards these are as follows

1. The internal spermatic fascia, derived from the fascia transversalis, it covers the cord in its whole extent.
2. The cremasteric fascia is made up of the muscle loops constructing the cremaster muscle, and the intervening areolar tissue. It is derived from the internal oblique and transversus abdominis muscles, and therefore covers the cord below the level of these muscles.
3. The external spermatic fascia is derived from the external oblique aponeurosis. It covers the cord below the superficial inguinal ring.

BOUNDARIES OF THE CANAL

The canal presents anterior and posterior walls, roof and floor, inlet and outlet.

Anterior wall

It is entirely formed by the skin, superficial fascia and the aponeurosis of the external oblique. The wall is partially formed in lateral one-third by the fleshy fibres of the internal oblique.

Posterior wall

It is entirely formed by the fascia transversalis which separates the canal from the extra-peritoneal tissue and peritoneum. It is partially formed-

- (a) In the medial half, by the conjoint tendon in front of the fascia transversalis.
- (b) In the medial one-fourth, by the reflected part of the inguinal ligament in front of the conjoint tendon.

Roof

The roof is formed by the arched fibres of the internal oblique and transversus abdominis muscles.

Floor

- (a) It is formed by the grooved upper surface of the inguinal ligament, the posterior margin of which fuses with the fascia transversalis.
- (b) Medially, the floor is formed by the upper surface of the lacunar ligament.

Inlet

Inlet is formed by the deep inguinal ring which is an oval gap in the fascia transversalis about 1.25 cm. above the mid-inguinal point. From the margin of the deep ring a tubular prolongation of internal spermatic fascia extends over the spermatic cord and testes. In fact the deep ring is not an opening, but is the neck of the internal spermatic fascia. Contents of the spermatic cord or round ligament enter the canal through the deep ring.

RELATIONS OF DEEP RING

Above

Arched fibres of the transversus abdominis muscle.

Infront and laterally

Internal oblique muscle.

Medially

Inferior epigastric artery.

Outlet

The outlet is formed by the superficial inguinal ring which is an oblique triangular gap in the aponeurosis of external oblique, above and lateral to the pubic crest. From the margin of the ring the external spermatic fascia balloons over the spermatic cord.

STRUCTURES PASSING THROUGH THE SUPERFICIAL RING

(a) Ilio- inguinal nerve.

(b) Spermatic cord or round ligament.

Measurements of the ring

Apex to base - 2.5 cm ; At the base - 1.25 cm

BOUNDARIES OF SUPERFICIAL RING

Base - formed by the pubic crest.

Apex - Directed above and laterally, formed by the convergence of the two crura and kept in position by the inter-crural fibres of the external oblique.

Medially - By the superior crus which is attached to the symphysis pubis.

Laterally - By the inferior crus which is fixed to the pubic tubercle.

DEFENSIVE MECHANISM OF INGUINAL CANAL

(SHUTTER MECHANISM)

1. The inguinal canal is oblique in direction so that the deep and superficial rings are situated at different places. In increased intra-abdominal pressure the posterior wall of the canal is pushed forwards and comes in contact with the anterior wall obliterating the canal like a flap-valve.
2. The construction of the canal is such that, opposite the deep ring the anterior wall of the canal is strengthened by the fleshy fibres of the internal oblique muscle, and opposite the superficial ring the posterior wall is strengthened by the conjoint tendon and reflected part of the inguinal ligament.

3. The arched fibres of the internal oblique and the transversus act as demi-sphincters in increased intra-abdominal pressure and obliterate the canal by bringing the roof in contact with the floor of the canal.
4. Cremasteric plug - In increased intra-abdominal pressure the cremaster muscle in male contracts and pulls the testes towards the superficial ring. Thus the outlet of the canal is closed like a plug (Ball - Valve action).
5. When abdominal muscles contract, the deep inguinal ring moves upwards and laterally. There by the canal is elongated and the lumen becomes more narrow.
6. Contraction of the external oblique results in approximation of the two crura of the superficial inguinal ring (Slit valve mechanism). The integrity of the superficial inguinal ring is greatly increased by the intercrural fibres.
7. Hormones play a role in maintaining the tone of the inguinal musculature.

DEVELOPMENT OF THE INGUINAL CANAL

The inguinal canal is developed from the differentiation of the muscles of the anterior abdominal wall around as inguinal fold of peritoneum which contains the gubernaculum of testes or ovary during the descent of the respective sex gland. The canal is formed before the descent of the testes.

THE MALE GENITAL SYSTEM

Male genital system includes the testes, vas deferens, seminal vesicles and ejaculatory ducts. Male external genitalia comprise the scrotum and the penis.

THE SCROTUM

The Scrotum is the downward prolongation of the anterior abdominal wall. It lodges the following structures

1. Testis
2. Epididymis and
3. Spermatic cord

It protects the testes from external violence and maintains a temperature which is lower than that of the abdomen. The scrotum is bilateral in development and is formed by the fusion of two genital swellings. The fusion is represented by a median raphe which is continuous with a similar raphe on the ventral surface of the penis and on the perineum. Left half of the scrotum is slightly lower than the right half for accommodation of the elongated left spermatic cord.

Scrotum has many layers

1. Skin
2. Dartos muscle
3. External spermatic fascia
4. Cremasteric muscle and fascia
5. Internal spermatic fascia
6. Tunica vaginalis testis.

SKIN

The skin is thin and transparent and elastic. So it allows distensions.

DARTOS MUSCLE

This is the continuation of the superficial fascia of the anterior abdominal wall.

THE EXTERNAL SPERMATIC FASCIA

It is derived from the aponeurosis of the external oblique abdominis.

Cremasteric muscle and fascia

It is derived from the internal oblique abdominis. The cremaster muscle is supplied by the genital branch of the genito femoral nerve.

The internal spermatic fascia

It is derived from the transverse abdominis muscle.

The tunicavaginalis testis

It is situated deep to the internal spermatic fascia. It is derived from the processus vaginalis. Before birth, it communicates with the peritoneal cavity. Just before birth, it separates and its communication with the peritoneal cavity is closed.

It covers the anterior, lateral, medial and a part of posterior surfaces of the testis. It has two layers namely visceral and parietal layers. Embryologically it is invaginated by the testis from behind.

BLOOD SUPPLY

Arterial Supply

1. Superficial external pudendal artery
2. Deep external pudendal artery
3. Posterior scrotal artery from the internal pudendal artery
4. Cremasteric artery from inferior epigastric artery.

Venous Drainage

1. Great saphenous vein
2. Internal iliac vein.

Lymphatic Drainage

Superficial inguinal lymph nodes.

NERVE SUPPLY

Anterior 1/3

1. Ilio inguinal nerve(L1)
2. Genital branch of the genito femoral nerve(L1)

Posterior 2/3

1. Posterior scrotal nerve, S4
2. Posterior cutaneous nerves of the thigh S3, S4
3. Dartos muscle is supplied by sympathetic nerves.

PATHOLOGY

HERNIA

A hernia is the protrusion of a viscus or part of a viscus through an abnormal opening.

The most common location for hernia is the abdomen. The abdominal wall - a sheet of tough muscle and tendon that runs down from the ribs to the legs at the groins - acts as '**nature's corset**'. Its function, amongst other things, is to hold in the abdominal contents, principally the intestines. If a weakness should open up in that wall, and it does not really matter how or why it happened, the '*CORSET EFFECT*' is lost and what pushes against it from the inside (the intestines) simply pushes through the 'window'. The ensuing bulge, which is often quite visible against the skin, is the hernia. These 'windows of weakness' commonly occur where there are natural weaknesses in our abdominal wall - such as where the 'plumbing' goes through it. Examples of these are the canals inguinal and femoral which allow passage of vessels down to the scrotum and the legs, respectively.

Types of Abdominal Hernia

1. Inguinal hernia
2. Femoral hernia
3. Umbilical hernia
4. Incisional hernia

The most frequent of this is, Inguinal hernia which occurs in 73% cases.

INGUINAL HERNIA

Inguinal hernias occur when soft tissue usually part of the intestine protrudes through a weak point or tear in the lower abdominal wall. The resulting bulge of this common condition can be painful especially during cough, bend over or lift a heavy object.

AETIOLOGY

In many people, the abdominal wall weakness that leads to an inguinal hernia occurs at birth when the abdominal lining peritoneum doesn't close properly. Other inguinal hernias develop later in life when muscles weaken or deteriorate due to factors such as ageing, strenuous physical activity or coughing that accompanies smoking.

Some inguinal hernias have no apparent cause. But many occur as a result of increased pressure within the abdomen, a pre-existing weak spot in the abdominal wall or a combination of the two.

More Common in men

Men are more likely to have an inherent weakness along the inguinal canal than women because of the way males develop in the womb. In the male fetus, the testicles form within the abdomen and then move down the inguinal canal into the scrotum. Shortly after birth, the inguinal canal closes almost completely, leaving just enough room for the spermatic cord to pass through, but not large enough to allow the testicles to move back into the abdomen.

Sometimes, however, the canal doesn't close properly, leaving a weakened area.

Weaknesses can also occur in the abdominal wall later in life, especially after an injury or certain operations in the abdominal cavity.

Whether a pre-existing weakness present or not, extra pressure in the abdomen can cause a hernia. This pressure may result from,

1. Straining during bowel movements or urination
2. Lifting heavy weights
3. Ascites
4. Pregnancy
5. Obesity
6. Even chronic coughing or sneezing can cause abdominal muscles to tear. Ex: Asthma, COPD, Whooping cough.

SIGNS AND SYMPTOMS

A bulge created by the protruding intestine. Other inguinal hernia symptoms include:

- ❖ Pain or discomfort in the groin, especially when bending over, coughing or lifting.
- ❖ A heavy or dragging sensation in the groin.
- ❖ Occasionally, in men, pain and swelling in the scrotum around the testicles when the protruding intestine descends into the scrotum.

CLASSIFICATION

ANATOMICAL TYPES: - Three types of classification can be made under this heading.

a. According to the extent of the hernia it can be either

(a) A Bubonocoele – when the hernia does not come out of the superficial inguinal ring;

(b) An Incomplete Hernia – when it comes out through the superficial inguinal ring but fails to reach the bottom of the scrotum, and

(c) Complete Hernia – when it reaches the bottom of the scrotum.

b. According to its site of exit it can be either

(a) An Oblique (Indirect) Hernia – when the hernia comes out through the deep inguinal ring i.e. lateral to the inferior epigastric artery and

(b) A Direct Hernia – when it comes out through the Hesselbach's triangle which is bounded medially by the lateral border of the rectus abdominis. Laterally by the inferior epigastric artery and below by the inguinal ligament that means the neck of the sac lies medial to the inferior epigastric artery.

c. According to the contents of the hernia, a hernia may be either

(a) An Enterocoele – when it contains the Intestine (Enteron),

(b) An Epiplocele or Omentocoele – when it contains omentum (epiploon); or

(c) A Cystocoele when it contains the urinary bladder.

OBLIQUE (INDIRECT) HERNIA

It comprises more than 80% cases of inguinal hernia. It occurs earlier than a direct hernia. It is often complete i.e. it reaches the bottom of the scrotum. The hernia descends obliquely downwards and inwards and it reduces obliquely in the opposite direction. This type of hernia does not reduce by itself. If the internal ring is occluded the hernia cannot come out even if the patient coughs. Two forms of indirect inguinal hernia are found in practice;

1. Congenital and

2. Acquired

CONGENITAL HERNIA

Normally the funicular process of peritoneum becomes obliterated after the testis has reached the scrotum. The scrotal part of the process remains patent and acquires the name 'tunica vaginalis'. In case of congenital hernia the whole process remains patent. With increase in the abdominal pressure abdominal contents come out through the patent peritoneal process. Thus a congenital hernia reaches the bottom of the scrotum very quickly. It may so happen that the funicular process remains patent up to the top of the testis. So the hernia stops at the top of the testis and is known as a congenital funicular hernia. It must be remembered that congenital hernia though so named, is usually seen in adults.

ACQUIRED HERNIA

As the name suggests it does not protrude into a pre-formed sac. Clinically it can be differentiated from a congenital hernia by the fact that it does not become complete at once. Acquired hernia progresses gradually.

CLINICAL FEATURES OF INDIRECT HERNIA

Occur at any age, males are commonly affected. The patient complains of pain in the groin or pain referred to the testicle when he is performing heavy work or taking strenuous exercise.

In the early stages, when the sac is limited to the inguinal canal, the diagnosis can present some difficulty. At first the swelling appears intermittently, but with time, the hernia comes down as soon as the patient assumes the erect posture. In large hernias, there is a sensation of dragging weight due to pulling of the mesentery.

DIRECT INGUINAL HERNIA

Between 10 and 15 % of inguinal herniae are direct. Over half of the herniae are bilateral.

A direct inguinal hernia is always acquired. The sac passes through a weakness or defect of the transversalis fascia in the posterior wall of the inguinal canal. In some cases, the defect is small and closely related to the insertion of the conjoint tendon; occasionally congenitally deficient, while in others there is a generalized bulge through Hesselbach's triangle. Often the patient is a man with poor abdominal musculature, as shown by the presence

of Malgaigne's bulgings. Women practically never develop a direct inguinal hernia. Predisposing factors are a chronic cough, straining and heavy work. Damage to the ilioinguinal nerve (Ex: By previous appendicectomy) is another known cause.

Direct herniae rarely attain a large size and descend into the scrotum. In contradistinction to an oblique inguinal hernia, a direct inguinal hernia lies behind the spermatic cord. The sac is often smaller than the hernial mass would indicate, the protruding mass mainly consisting of extra – peritoneal fat. A finger inserted into the superficial inguinal ring passes directly backwards into the abdomen. As the neck of the sac is wide, direct inguinal hernias rarely strangulate.

On coughing, the impulse is felt on the pulp of the finger whereas in an oblique hernia the impulse is felt on the finger tip, viz. oblique direct.

The inferior epigastric artery lies lateral to the aperture, but because of its small size and the nature of its coverings, it cannot be felt, those who pretend to feel it surrender themselves to a flattering delusion.

At operation the distinguishing features of a direct inguinal hernia are, that the sac lies medially to the inferior epigastric artery, and the spermatic cord is not attached to the wall of the sac. The sac is often smaller than the hernial mass would indicate the protruding mass mainly consisting of extraperitoneal fat. As the neck of the sac is wide, direct inguinal herniae rarely strangulate.

II. CLINICAL TYPES

Clinically hernia may be of five types

1. Reducible hernia

Normally an uncomplicated hernia is reducible. That means its contents can be returned into the abdominal cavity but the sac remains in its position.

2. Irreducible hernia

In this hernia the contents cannot be returned to the abdomen.

3. Obstructed or Incarcerated hernia

(Irreducibility + Intestinal obstruction)

An obstructed hernia means the hernia is associated with intestinal obstruction due to occlusion of the lumen of the bowel.

4. Strangulated hernia

(Irreducibility + Obstruction + Arrest of blood supply to the contents)

A hernia is said to be strangulated when the contents are so constricted as to be interfered with their blood supply.

5. Inflamed hernia

This is a very rare condition and mimics in many respects a strangulated hernia. This hernia may occur when its content such as an appendix, a salpinx or a Meckel's diverticulum becomes inflamed.

PATHOLOGICAL ANATOMY OF HERNIA

As a rule a hernia consists of 3 parts – the sac, the contents of the sac and the coverings of the sac.

The sac consists of a diverticulum of peritoneum which is divided into a mouth, neck, body and fundus. Usually the neck is well-defined, but in certain direct inguinal hernia and in many incisional herniae there is no actual neck. The body of the sac varies greatly in size and is not necessarily occupied. In cases occurring in infancy and childhood the sac is more delicate than the parietal peritoneum with which it is continuous. In old-standing cases, especially after years of pressure by a truss, the wall of the sac is comparatively thick and even of cartilaginous consistency.

RISK FACTORS OF HERNIA

- ❖ **Family history** - The risk of inguinal hernia increases if the person have a close relative, such as a parent or sibling, with the condition.
- ❖ **Certain medical conditions** - Having cystic fibrosis, a life-threatening disorder that causes severe lung damage and often a chronic cough, will develop an inguinal hernia.
- ❖ **Chronic cough** - A chronic cough, such as occurs from smoking, increases the risk of inguinal hernia.
- ❖ **Chronic constipation** - This leads to straining during bowel movements - a common cause of inguinal hernias.

- ❖ **Excess weight** - Being moderately to severely overweight can put extra pressure on the abdomen.
- ❖ **Pregnancy** - This can both weaken the abdominal muscles and cause increased pressure inside the abdomen.
- ❖ **Certain occupations** - Having a job that requires standing for long periods or doing heavy physical labor increases the risk of developing an inguinal hernia.
- ❖ **Premature birth** - Infants who are born sooner than normal are more likely to have inguinal hernias.
- ❖ **History of hernias** - If the person had one inguinal hernia, it is much more likely that they will eventually develop another - usually on the opposite side.

COMPLICATIONS

Not necessarily dangerous in themselves, inguinal hernias can lead to life-threatening complications.

Most inguinal hernias enlarge over time if they are not repaired surgically. Large hernias can put pressure on surrounding tissues - in men they may extend into the scrotum, causing pain and swelling.

But the most serious complication of an inguinal hernia occurs when a loop of intestine becomes trapped in the weak point in the abdominal wall.

This may obstruct the bowel, leading to severe pain, nausea, vomiting and the inability to have a bowel movement or pass gas.

It can also diminish blood flow to the trapped portion of the intestine - a condition called **strangulation**, that may lead to the death of the affected bowel tissues. A strangulated hernia is life-threatening and requires immediate surgery.

PREVENTIVE MEASURES

The aggravated Vali humour is mainly responsible for Anda Vadham. Hence, we have to balance the humour through proper diet habits and proper life style manners. It also occurs congenitally. We can't prevent the congenital defect that may lead to an inguinal hernia, but the following steps can help to reduce strain on the abdominal muscles and tissues:

- ❖ Maintain a healthy weight.
- ❖ Avoid constipation.
- ❖ Emphasize high-fiber foods.
- ❖ Avoid vegetables like tubers which produces increased vayu.
- ❖ Lift heavy objects carefully or avoid heavy lifting altogether.
- ❖ Avoid smoking.
- ❖ Since the disease aggravates during Kaar kaalam and Mudhuvenir kaalam the patients are advised to take high sweet and salt containing foods to balance the humour.

- ❖ Yogic exercises assure a normal individual of his physical well being; They also both curative and recuperative in action. Asanams like Karudasanam, Patchimotthasanam, Chakkarasanam and Salabasanam will strengthen the abdominal muscles.
- ❖ Practising Pranayama will maintain the humours in normal equilibrium.

EVALUATION OF THE DISSERTATION TOPIC

MATERIALS AND METHODS

The clinical study on Anda vadham was carried out at the post graduate department of Noi Naadal in Government Siddha Medical College, Palayamkottai.

CASE SELECTION AND SUPERVISION

The author has selected 20 cases with similar symptoms of Anda vadham as mentioned in Thanvanthiri Vaidhyam volume II under the supervision of faculties and Head of the Department of post graduate Noi Naadal Department.

The detailed history of past and present illness, personal and family history were observed.

Out of the 20 cases, 13 cases were selected to evaluate the typical picture by using Siddha parameters with the help of allied parameters.

EVALUATION OF CLINICAL PARAMETERS

The clinical symptoms such as,

- ❖ Descend of the intestine into the scrotum – Both unilateral and bilateral sides.
- ❖ Pain and swelling of the Scrotum.
- ❖ Reducibility of the intestines into the abdominal cavity.

were taken as criteria for selection of patients.

HISTORY TAKING

History of illness with regard to

1. Diet habits
2. Occupation
3. Personal habits
4. Socio-economic status
5. Family history
6. Detailed history of past illness such as,

Chronic cough

Chronic Obstructive Pulmonary Diseases

Obesity

Appendicectomy

Chronic constipation

Straining on micturition

were interrogated from the patient in detail.

CLINICAL DIAGNOSIS THROUGH SIDDHA PARAMETERS

Patients are investigated on the basis of the following siddha diagnostic tools, Poriyaal therthal, Pulanaal arithal, Vinaathal, Ennvagai thervugal, Mukkutra nilaigal and Udal thaathukkal which are adopted to assess the Humoral Pathology.

CLINICAL PARAMETERS

For further detailed study of the disease modern investigatory parameters were used.

Blood

Total count (TC)

Differential count (DC)

Haemoglobin (Hb)

Erythrocyte Sedimentation Rate (ESR)

Bio-Chemical

Blood sugar

Blood Urea

Serum Cholesterol

Urine

Albumin

Sugar

Deposits

Crystals

Cast

Motion

Ova

Cyst

Occult Blood

Other Investigations

X-ray Chest PA view

USG Abdomen and Pelvis

Doppler study

OBSERVATION AND RESULTS

Results were observed with respect to the following aspects

- i. Age reference.
- ii. Occupation and Diet Habits
- iii. Etiological factors
- iv. Paruva Kaalangal
- v. Mukkutra Nilaigal
- vi. Udal Thaathukkal
- vii. Ennvagai Thervugal
- viii. Manikkadai Nool
- ix. Clinical Features
- x. Laboratory Findings.

STATISTICAL ANALYSIS AND INFERENCES

The study subjects were analysed with the help of the statistical tools namely percentage, mean and standard deviations. The inferences, which were arrived by utilizing the test of significance viz, 't' test, Relative risk and Odds ratio.

AGE REFERENCE

The study subjects were analysed and interpreted based on their age, which is an independent variable revealing the burden of the disease. In the literature, some evidences are sourced that the incidence of diseases may be attributed to congenital. The congenital occurrence of the diseases may be exploited during the adult hood due to weight lifting and other hardworks. The incidence of the diseases in the late adulthood (40 to 59 years) and old age (above 60 years) may be evidenced by the causes related to the hard work. The above hypothetical etiology of the disease is proved in the below mentioned table.

Table – 8

Anda Vadham Cases Classified According to their Age

S. No	Age Group (Years)	No. of cases studied
1.	20 - 39	8
2.	40 - 59	2
3.	60 - 80	3
Total		13
Mean		39.5
Standard deviation		20.2
Median		29
Median Age in Population		17.8 - 40.2

The normal incidence of the disease may be in the age bracket of – 0.9 to 79.9 years. The lower limit of the age bracket is – 0.9 years. It is the intra-uterine period of the foetus. From this inference, the etiology of the disease may be attributed to congenital. The incidence of the disease during the adulthood is mainly due to congenital cause but come into exposure only by any predisposing factors. The incidence of the disease after the mean age of 39.5 ± 20.2 may be attributed to other factors like hard work, life style, diet habits and old age.

OCCUPATION AND DIET HABIT

The occupation and habit of the study subjects were analysed and tabulated. The results are as follows:

Table -9

Skipping of diet and the nature of work of the study subjects

S. No.	Skipping of Diet	Occupation				Total
		Hard work		Light work		
		No. of cases	%	No. of cases	%	
1.	Present	5	62.5	0	0	5
2.	Absent	3	37.5	5	100	8
3.	Total	8	100	5	100	13

(Relative Risk $RR_{mod}=10$) and (Attributable Risk $AR=90\%$)

The probability of skipping of diet is more common among the hard workers than the light workers because of their nature of work. Among hard workers 62.5% of the persons are having the habit of skipping of diet. The relative risk of the habit than the light workers is 10 times greater ($RR_{mod}=10$). In the study subjects, the skipping of diet habit is attributed to 90% (Attributable Risk ($AR=90\%$)) Hard work with skipping of food is 90% risk of the incidence of the disease.

Heavy weight Lifting

Heavy weight lifting is one of the etiology of Anda Vadham. The following epidemiological analysis will clearly shows the etiology of Anda Vadham.

Table – 10

Risk of heavy weight lifting below the age group of 40 years

Heavy Weight Lifting	Age		Total	Relative Risk	Odd's Ratio
	<40 years	>40 years			
Yes	4	3	7	0.857	0.667
No	4	2	6		
Total	8	5	13		

The relative risk of Heavy weight lifting with the study subjects age less than 40 years is 0.857. That means no risk of Heavy weight lifting is attributed to the incidence of Anda Vadham among the 40 years less than 40 years of population. Similarly the risk of lifting of heavy weight as an odd among less than 40 years population is only 0.667. The risk is not statistically significant.

Table –11

Risk of heavy weight lifting above 40 years of study subjects

Heavy Weight Lifting	Age		Total	Relative risk	Odd's Ratio
	40 and above years	<40 years			
Yes	3	4	7	1.3	1.5
No	2	4	6		
Total	5	8	13		

The relative risk of heavy weight lifting above 40 years population is 1.3 times greater than the population below 40 years. The odds ie. heavy weight lifting risk is 1.5 times greater than below 40 years population. From the above two analysis it can be safely interpreted that the heavy weight lifting is an etiology of Anda Vadham among the old age people.

But the heavy weight lifting among less than 40 years is not an etiology of the incidence of Anda Vadham. After natively it can be interpreted, the etiology of Anda Vadham is congenital.

PARUVA KAALANGAL

The incidence of the disease in Kaar Kaalam is 7 subjects. The incidence in Ilavenil Kaalam is nil. During Koothir Kaalam and Pinpani Kaalam, the incidence recorded is 1 case in each. Similarly during Munpani Kaalam and Mudhuvenil Kaalam the incidence is 2 cases in each. The maximum occurrence 53.8% in Kaar Kaalam. The incidence of the disease during the **Kaar Kaalam** in population may be 24.8% to 82.8% and **95%** of confidence interval.

MUKKUTRA NILAIGAL

Table – 12

Anda vadham study subjects analysed according to Mukkutra Nilaigal

S. No.	Deranged humour	Types	No.of cases Affected	Ratio	Changes
1.	Increased Vali n = 13	Praanan	2	15.4	Chronic dry cough,
			10	76.9	Indigestion.
		Abaanan	11	84.6	Constipation.
		Udhaanan	2	15.4	Chronic dry cough,
			10	76.9	Indigestion.
		Viyaanan	13	100	Pain and swelling in the inguino - scrotal region.
		Samaanan	10	76.9	Indigestion.
		Koorman	3	23.1	Dimness of vision.
2.	Decreased Azhal n = 13	Kirukaran	10	76.9	Indigestion.
		Devathathan	8	61.5	Tiredness and anger.
		Anilam	10	76.9	Indigestion, reduced appetite.
		Ranjagam	8	61.5	Tiredness.
3.	Increased Iyam n = 13	Praasagam	6	46.2	Skin complexion is dull.
		Aalosagam	3	23.1	Cataract.
		Avalambagam	2	15.4	Chronic dry cough.
		Kilethagam	10	76.9	Indigestion, reduced appetite.
		Pothagam	6	46.2	Sensation of pulippu (sour) taste in the tongue.

UDAL KATTUKKAL

Table – 13

Anda vadham study subjects analysed according to Udal Kattukkal

S. No.	Udal Kattukkal	Changes	Affected No.of cases	Percentage
1.	Saaram	Weakness of the abdominal muscles.	13	100
2.	Senneer	Tiredness. Affinity to sour taste.	13 6	100 46.2
3.	Oon	The tonicity of the abdominal muscles is decreased, which results in descend of the intestines from its original position.	13	100
4.	Kozhuppu	The tonicity of the. abdominal muscles is decreased.	13	100
5.	Enbu	Hair falling.	3	23.1
6.	Moolai	Tiredness. Dimness of vision.	13 3	100 23.1
7.	Sukkilam	Scrotal Pain. Impotency.	12 1	92.3 7.7

ENNVAGAI THERVUGAL

Table-14

The Picture of Ennvagai Thervugal

S.No.	OP / IP No.	Age/Sex	Naa	Niram	Mozhi	Vizhi	Sparisam	Malam	Moothiram		Naadi
									Neerkuri	Neikuri	
1.	14140	60/M	N	A	N	A	A	A	A	MA	IV
2.	13	48/M	A	A	N	A	A	A	A	MA	IV
3.	30597	80/M	N	N	N	A	A	A	A	MA	IV
4.	60628	30/M	N	N	N	A	A	A	N	MA	IV
5.	67123	43/M	N	N	N	N	A	N	A	AM	VA
6.	74793	27/M	A	A	N	A	A	A	A	MA	IV
7.	3553	24/M	A	A	N	N	A	A	A	MA	IV
8.	3480	27/M	N	A	N	N	A	A	A	AM	VA
9.	5	22/M	A	N	N	N	A	A	A	MA	IV
10.	11	29/M	N	N	N	N	A	A	A	MA	IV
11.	18323	72/M	A	N	N	A	A	A	A	MA	IV
12.	32292	25/M	A	A	N	N	A	N	A	MA	IV
13.	32268	24/M	A	N	N	A	A	A	A	AM	VA

N – Normal A – Affected Neikuri : MA – Muthil Aravam AM – Aravil Mothiram

Naadi : IV – Iya Vali VA – Vali Azhal

The Anda Vadham persons were identified for the incidence of the disease through Ennvagai Thervugal and the percentage of them is posted in this table.

Table – 15

S. No	Ennvagai Thervugal	Changes	Affected No. of cases	Percentage
1.	Naa	Maa padinthiruthal	3	23
		Affinity to Sour Taste	6	46.2
2	Niram	Normal.	13	100
3.	Vizhi	Redness and burning sensation of the eyes.	7	53.8
		Cataract	3	23.1
4.	Mozhi	Sama oli	12	92.3
		Urattha oli	1	7.7
5	Sparisam	Migu veppam, increased sweating.	5	38.5
		Swelling of the scrotum.	13	100
6	Malam	Constipation	11	84.6
7	Moothiram			
	Neerkuri	Yellow, Reduced quantity	11	84.6
		Deposits	3	23.1
	Neikuri	MuthilAravam	10	76.9
8	Naadi	Aravil Mothiram	3	23.1
		Iya Vali	10	76.9
		Vali Azhal	3	23.1

The percentage distribution of the above table clearly illustrates the Ennvagai Thervugal and its compound. Among them, the most affected indications are **Vizhi – (53.8%)**, **Sparisam – (100%)** **Sama oli- (92.3%)**, **Malam - (84.6%)**, **Neikuri -Muthil Aravam(76.9%)** and **Naadi - Iya Vali (76.9%)**. Above 50% of the affected cases shows variations in the Ennvagai Thervugal. They may be treated as indicators of Anda Vadham.

MANIKKADAI NOOL

Table – 16

The Manikkadai Nool inferences are tabulated as follows

S.No	Viralkadai Alavu	Affected no. of cases	Percentage
1	6¾	7	53.8
2.	7¼	4	30.8
3.	7½	2	15.4

CLINICAL FEATURES

The clinical features of the study subjects are enumerated in the below mentioned table.

Table – 17

Clinical features

S. No	Clinical Features	No. of cases	Affected No.of cases	Percentage
1	Descend of the intestines into scrotum. Unilateral Bilateral	13	10 3	76.9 23
2	Pain in the scrotum	13	12	92.3
3	Swelling of the scrotum	13	13	100
4	Reducibility	13	13	100

The percentage distribution of clinical features indicates, **descend of the intestine into the scrotum is 100%, swelling of the scrotum and reducibility is 100% and pain in the scrotum is 92.3%.**

DISCUSSION

INTERPRETATION OF CLINICAL PARAMETERS

The research work on “Anda Vadham” mentioned in Thanvanthiri vaidhiyam under Uthara Roga Nithanam is thoroughly studied by observing 13 outpatients from Noi Naadal branch and Inpatients of other private hospitals, Tirunelveli. The patients were interrogated thoroughly and their history, ailments, characters of signs and symptoms are noted in detail in the materials and methods observation.

The inference obtained from the observation is explained as follows,

Age and sex distribution

Males are commonly affected and the incidence is high in the age group between **20 to 80 years**. It is observed, that Anda vadham occurring in the adulthood is mainly due to congenital cause which come into exposure by any pre-disposing factors. In old age, it is observed that the disease occurs mainly due to ageing, improper diet habits and modified life style.

Family History

On observation, there is no related family history.

Occupation

Most of the patients belonging to **labour group** and doing hard work like **heavy weight lifting** were highly affected.

Socio-Economic Status

It is observed that the occurrence of Anda vadham is common among all classes of people. Especially in **poor people**, their **diet habit** and **heavy work** is the pre-disposing cause. In **rich people**, **sedentary life style** which leads to obesity is the main reason for the occurrence of disease.

Diet Habits

On observation, people those who **skipped their diets** and **taking heavy diets** were commonly affected.

Personal Habits

On observation, the persons who were **chain smokers** are commonly affected by **chronic cough**, which is one of the pre-disposing cause of Anda Vadham.

Previous History

People having history of **chronic constipation**, **chronic cough** and undergone any abdominal surgeries like **appendicectomy** were affected.

Seasonal variations

On observation, the incidence of the disease during **Kaar kaalam** is **95%** of confidence interval and during **Mudhuvenil kaalam** also patients had their first occurrence. This reveals that Vali humour generally aggravates during this period.

INTERPRETATION OF SIDDHA PARAMETERS

MUKKUTRA NILAIGAL

In Anda vadham the changes observed in the 3 cardinal humours were,

VALI

The **aggravated Vali humour** in Anda Vadham shows following changes:

Praanan

Praanan shows changes like **chronic dry cough** and **indigestion** .It results in **increased intra abdominal pressure**.

Abaanan

Abaanan shows changes like **constipation** which results in straining on defaecation which is one of the pre-disposing cause for Anda Vadham.

Viyaanan

Viyaanan shows changes like **pain** and **swelling** in the scrotal region.

Udhaanan

Udhaanan shows changes like **chronic dry cough** and **indigestion**.

Samaanan

Samaanan shows changes like **indigestion**.

Koorman

Dimness of vision were observed.

Kirukaran

Kirukaran shows changes like **chronic dry cough, coated tongue** and **indigestion**.

Devathathan

Tiredness and **Anger** were observed.

IYAM

Iyam shows its **increased character** in Anda Vadham. The changes observed were:

Avalambagam

Chronic dry cough were observed which is one of the predisposing cause for Anda Vadham.

Kilethagam

Indigestion and **reduced appetite** were observed. It is one of the cause for Vayu accumulation in the intestines in Anda Vadham.

Pothagam

Sensation of pulippu (sour) taste in the tongue is seen. This reveals the affected Vali humour.

AZHAL

In Anda Vadham the **Azhal humour** shows its **decreased character** and shows following changes:

Anilam

Indigestion and **reduced appetite** were observed.

Ranjagam

Tiredness observed.

Aalosagam

Cataract changes in the eyes were observed.

UDAL KATTUKKAL NILAIGAL

The derangement of humours in Anda Vadham shows physiological variations in the body. They are tabulated as follows.

Table-19

Changes in Udal kattukkal

S.No	Decreased Udal Kattukkal	Changes Observed
1.	Saaram	Weakness of the abdominal muscles.
2.	Senneer	Tiredness, Affinity to sour taste.
3.	Oon	The tonicity of abdominal muscles is decreased, which results in descend of the intestines from its original position.
4.	Kozhuppu	The tonicity of abdominal muscles is decreased.
5.	Enbu	Hair falling.
6.	Moolai	Tiredness, Dullness of vision.
7.	Sukkilam	Scrotal Pain and Impotency.

The changes observed in Udal thaathukkal shows their decreased character in Anda Vadham and confirms the diagnosis.

INTERPRETATION OF ENNVAGAI THERVUGAL

Table-20 Ennvagai Thervugal

S.No.	Ennvagai Thervugal	Changes Observed
1.	Naa	Coated tongue, affinity to sour taste.
2.	Niram	No changes.
3.	Vizhi	Redness, Burning sensation and Cataract.
4.	Mozhi	Sama Oli
5.	Sparisam	Migu Veppam, Increased sweating and swelling of scrotum.
6.	Malam Colour Consistency Quantity Frequency	Dark Hard Decreased Two days once.
7.	Moothiram Neerkuri Quantity Colour Odour Frothy Nature Deposits Neikuri	Reduced Dark Yellow Acidic Present 1-2 pus cells, 1-2 epithelial cells Initially it forms a pearl shape and spreads like a serpent. Initially spreads like a serpent and then forms a ring shape.
8.	Naadi	Iya Vali Vali Azhal

All the changes observed in Ennvagai Thervugal depicts the derangement of Vali humour associated with derangement of Azhal and Iyam humors in Anda Vadham and confirms the diagnosis.

MANIKKADAI NOOL

On observation, the Viralkadai alavu (measurements) reveals,

6³/₄- Anda Vadham.

7 ¹/₄ -Increased vayu in the body and

7 ¹/₂ -Burning sensation in the body.

INTERPRETATION OF ALLIED PARAMETERS

Manual Examination

Swelling present in the inguino-scrotal region

Skin is normal

Cough impulse test is positive.

Bio Chemical Assay

In some cases of Anda Vadham, in routine examination the serum Cholesterol level shows changes between the range of 220 – 280 mgs/dl. In such patients obesity is one of the pre-disposing cause for Anda Vadham. .

Doppler study

In some cases the Doppler study of Scrotum gives impression as, Inguinoscrotal swelling due to Hernia.

HIGHLIGHTS OF THE DISSERTATION TOPIC

Anda Vadham comes under Uthara Roga Nithanam in Thanvanthiri Vaidhiyam is characterized by descend of the intestines into the scrotum, pain and swelling of the scrotum and reducibility of the herniated contents into the abdominal cavity.

According to Siddha literatures, Andam means scrotum and Vadham means a humour which helps in maintaining the normal physiological function of the body.

From the research work the author observed that, the important and major etiological factor of Anda Vadham is increased Vayu (Vali) which weakens the abdominal muscles and decreases its tonicity and paves the way for descend of the intestines into the scrotum and manifest the clinical symptoms.

It is observed that improper diet habit and modified life style manners is mainly responsible for the disease Anda Vadham. In some cases it occurs congenitally also.

Anda Vadham can be precisely diagnosed earlier with the help of sound knowledge about knowing the pathogenesis of the disease. The clinical features of Anda Vadham depicts through **Ennvagai Thervugal** confirms the diagnosis. The allied parameters also plays an important role in the diagnosis.

CONCLUSION

The clinical study of **Anda Vadham** is mainly based on Siddha diagnostic methods with the help of allied parameters.

The lines that were depicted in the Anda Vadham under Uthara Roga Nithanam in the textbook Thanvanthiri Vaidhyam elaborates the clinical features of Herniation of the Intestines into the scrotum.

Descend of the intestines into the scrotum, pain and swelling of the scrotum and reducibility of the hernial contents into the abdominal cavity. These are the signs and symptoms of Anda Vadham and it represents the clinical features of **Complete Inguinal Hernia**.

The signs and symptoms of Anda vadham were studied in all selected cases. The aetiological factors for Anda Vadham is mainly due to **increased Vayu** accumulation in the intestines due to altered dietary habits, modified life style, congenital factors and environmental changes. This is stressed in modern aspects **Abdominal Hernia** is mainly caused by **weakening of the abdominal musculature** due to conditions which raised intra-abdominal pressure, old age and congenital defect.

The picture exhibited in the Siddha parameters were the exaggeration of humour **Vali** which depicts through **Ennvagai Thervugal** and helps in the diagnosis.

Though the features reveal the uncomplicated stage of the disease, the patient must be aware of it. Early diagnosis, proper palliative treatment and proper diet habits and life style manners are very helpful in avoiding the complicated stage of this disease.

P.G. -NOI NAADAL DEPARTMENT
GOVT. SIDDHA MEDICAL COLLEGE, PALAYAMKOTTAI.

A study to Diagnose “Anda Vadham” through Siddha

Diagnostic Methodology

SELECTION PROFORMA

1.O.P.No _____ 2. I.P. NO _____ 3. Bed No: _____ 4. S. No:_____5.Date: _____

6. Name: _____ 7. Age (Years):

--	--

 8. Sex:

M	F
---	---

9. Occupation: _____ 10. Income: _____/month

11. Address:

.....

.....

12. Complaints and duration:

.....

.....

13. History of present illness:

.....

.....

14. Past history:

.....

.....

15. Family History:

.....

.....

Habits		1.Yes	2.No	
16. Smoking :		<input type="checkbox"/>	<input type="checkbox"/>	_____
17. Tea :		<input type="checkbox"/>	<input type="checkbox"/>	_____
18. Coffee :		<input type="checkbox"/>	<input type="checkbox"/>	_____
19. Tobacco chewing :		<input type="checkbox"/>	<input type="checkbox"/>	_____
20. Alcohol :		<input type="checkbox"/>	<input type="checkbox"/>	_____
21. Food habits :	V <input type="checkbox"/> NV <input type="checkbox"/> M <input type="checkbox"/>			_____
22. Kind of occupation:				
a.Sedantary work		<input type="checkbox"/>	<input type="checkbox"/>	_____
b.Heavy work		<input type="checkbox"/>	<input type="checkbox"/>	_____
c.Light work		<input type="checkbox"/>	<input type="checkbox"/>	_____

GENERAL ETIOLOGY FOR ANDA VADHAM

	1.Yes	2.No	
23. Heavy intake of diet	<input type="checkbox"/>	<input type="checkbox"/>	_____
24. Skipping of diets	<input type="checkbox"/>	<input type="checkbox"/>	_____
25. Constipation	<input type="checkbox"/>	<input type="checkbox"/>	_____
26. Anger	<input type="checkbox"/>	<input type="checkbox"/>	_____
27. Straining on micturition	<input type="checkbox"/>	<input type="checkbox"/>	_____
28. Doing heavy work after full meals	<input type="checkbox"/>	<input type="checkbox"/>	_____
29. Lying in chill floor	<input type="checkbox"/>	<input type="checkbox"/>	_____
30. Sleeping in improper position	<input type="checkbox"/>	<input type="checkbox"/>	_____
31. Congenital	<input type="checkbox"/>	<input type="checkbox"/>	_____
32. Old age	<input type="checkbox"/>	<input type="checkbox"/>	_____
33. Lifting heavy weights	<input type="checkbox"/>	<input type="checkbox"/>	_____
34. Chronic cough	<input type="checkbox"/>	<input type="checkbox"/>	_____

35. C/o.Asthma	<input type="checkbox"/>	<input type="checkbox"/>	_____
36. C/o.Chronic Obstructive Pulmonary Diseases	<input type="checkbox"/>	<input type="checkbox"/>	_____
37. C/o.Whooping cough	<input type="checkbox"/>	<input type="checkbox"/>	_____
38. Obesity	<input type="checkbox"/>	<input type="checkbox"/>	_____
39. Appendicectomy	<input type="checkbox"/>	<input type="checkbox"/>	_____

GENERAL EXAMINATION

40.Weight(kg)	<input type="text"/>	<input type="text"/>	<input type="text"/>	
41.Temperature(°F)	<input type="text"/>	<input type="text"/>	<input type="text"/>	
42.Pulse rate/minute	<input type="text"/>	<input type="text"/>	<input type="text"/>	
43.Heart rate/minute	<input type="text"/>	<input type="text"/>	<input type="text"/>	
44.Respiratory rate/minute	<input type="text"/>	<input type="text"/>	<input type="text"/>	
45.Blood pressure(mmHg)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	1.Yes	2.No		
46.Pallor	<input type="checkbox"/>	<input type="checkbox"/>	_____	
47.Jaundice	<input type="checkbox"/>	<input type="checkbox"/>	_____	
48.Cyanosis	<input type="checkbox"/>	<input type="checkbox"/>	_____	
49.Lymphadenopathy	<input type="checkbox"/>	<input type="checkbox"/>	_____	
50.Pedal edema	<input type="checkbox"/>	<input type="checkbox"/>	_____	
51.Clubbing	<input type="checkbox"/>	<input type="checkbox"/>	_____	
52.Jugular venous pulsation	<input type="checkbox"/>	<input type="checkbox"/>	_____	

VITAL ORGANS EXAMINATION

	1.Normal	2.Affected	
53.Heart	<input type="checkbox"/>	<input type="checkbox"/>	_____
54.Lungs	<input type="checkbox"/>	<input type="checkbox"/>	_____
55.Brain	<input type="checkbox"/>	<input type="checkbox"/>	_____
56.Liver	<input type="checkbox"/>	<input type="checkbox"/>	_____
57.Kidney	<input type="checkbox"/>	<input type="checkbox"/>	_____
58.Spleen	<input type="checkbox"/>	<input type="checkbox"/>	_____
59.Stomach	<input type="checkbox"/>	<input type="checkbox"/>	_____

SIDDHA SYSTEM OF EXAMINATION

ENNVAGAI THERVUKAL

NAA

60.Maa Padinthuruthal

1. Present ☐ 2. Absent ☐

61.Niram

1. Karuppu ☐ 2. Manjal ☐ 3. Velluppu ☐

62.Suvai

1. Pulippu ☐ 2. Kaippu ☐ 3. Inippu ☐

63.Vedippu

1. Present ☐ 2. Absent ☐

64.Vai neer oorai

1. Normal ☐ 2. Increased ☐ 3. Reduced ☐

65.NIRAM

1. Karuppu ☐ 2. Manjal ☐ 3. Velluppu ☐

66.MOZHI1. Sama oli ☐2. Urattha oli ☐3. Thazhntha oli ☐**VIZHI**

67. Niram

1. Karuppu ☐2. Manjal ☐3. Sivappu ☐4. Velluppu ☐

68. Kanneer

1. Present ☐2. Absent ☐

69. Erichchal

1. Present ☐2. Absent ☐

70. Peelai seruthal

1. Present ☐2. Absent ☐**MEI KURI**

71.Veppam

1. Mitham ☐2. Migu ☐3. Thatpam ☐

72.Viyarvai

1. Normal ☐2. Increased ☐3. Reduced ☐

73.Thodu vali

1. Present ☐2. Absent ☐**MALAM**

74.Niram

1. Karuppu ☐2. Manjal ☐3. Sivappu ☐4. Velluppu ☐

75.Sikkal

1. Present ☐2. Absent ☐

76.Sirutthal

1. Present ☐

2. Absent ☐

77.Kalichchal

1. Present ☐

2. Absent ☐

78.Seetham

1. Present ☐

2. Absent ☐

79.Vemmai

1. Present ☐

2. Absent ☐

MOOTHIRAM

NEER KURI

80.Niram

1. Venmai ☐

2. Manjal ☐

3. Crystal clear ☐

81.Manam

1. Present ☐

2. Absent ☐

82.Nurai

1. Nil ☐

2.Increased ☐

3. Reduced ☐

83.Edai (Ganam)

1. Normal ☐

2. Increased ☐

3. Reduced ☐

84.Enjal (Alavu)

1. Normal ☐

2. Increased ☐

3. Reduced ☐

85.NEI KURI

1. Aravam ☐

2. Mothiram ☐

3. Muthu ☐

4. Aravil Mothiram ☐

5. Aravil Muthu ☐

6. Mothirathil Aravam ☐

- | | | | |
|----------------------|--------------------------|------------------|--------------------------|
| 7. Mothirathil Muthu | <input type="checkbox"/> | 8. Muthil Aravam | <input type="checkbox"/> |
| 9. Muthil Mothiram | <input type="checkbox"/> | 10. Asathiyam | <input type="checkbox"/> |
| 11. Mellena paraval | <input type="checkbox"/> | | |

NAADI(KAI KURI)

Naadi Nithanam

86. Kaalam

- | | | | |
|-------------------|--------------------------|---------------------|--------------------------|
| 1. Kaarkaalam | <input type="checkbox"/> | 2. Koothirkaalam | <input type="checkbox"/> |
| 3. Munpanikaalam | <input type="checkbox"/> | 4. Pinpanikaalam | <input type="checkbox"/> |
| 5. Ilavenirkaalam | <input type="checkbox"/> | 6. Muthuvenirkaalam | <input type="checkbox"/> |

87. Desam

- | | | | |
|----------|--------------------------|-----------|--------------------------|
| 1. Kulir | <input type="checkbox"/> | 2. Veppam | <input type="checkbox"/> |
|----------|--------------------------|-----------|--------------------------|

88. Vayathu

- | | | | | | |
|------------|--------------------------|-------------|--------------------------|--------------|--------------------------|
| 1. 1-33yrs | <input type="checkbox"/> | 2. 34-66yrs | <input type="checkbox"/> | 3. 67-100yrs | <input type="checkbox"/> |
|------------|--------------------------|-------------|--------------------------|--------------|--------------------------|

89. Udal Vanmai

- | | | | | | |
|-----------|--------------------------|-----------|--------------------------|-----------|--------------------------|
| 1. Iyalbu | <input type="checkbox"/> | 2. Valivu | <input type="checkbox"/> | 3. Melivu | <input type="checkbox"/> |
|-----------|--------------------------|-----------|--------------------------|-----------|--------------------------|

90. Naadi Vanmai

- | | | | |
|-----------|--------------------------|-----------|--------------------------|
| 1. Vanmai | <input type="checkbox"/> | 2. Menmai | <input type="checkbox"/> |
|-----------|--------------------------|-----------|--------------------------|

91. Panbu

- | | | | | | |
|----------------|--------------------------|--------------|--------------------------|---------------|--------------------------|
| 1. Thannadai | <input type="checkbox"/> | 2. Puranadai | <input type="checkbox"/> | 3. Illaitthal | <input type="checkbox"/> |
| 4. Kathithal | <input type="checkbox"/> | 5. Kuthithal | <input type="checkbox"/> | 6. Thullal | <input type="checkbox"/> |
| 7. Azhutthal | <input type="checkbox"/> | 8. Padutthal | <input type="checkbox"/> | 9. Kalatthal | <input type="checkbox"/> |
| 10. Munnokku | <input type="checkbox"/> | 11. Pinnokku | <input type="checkbox"/> | 12. Suzhalal | <input type="checkbox"/> |
| 13. Pakkanokku | <input type="checkbox"/> | | | | |

92. Naadi nadai

1.Vali	<input type="checkbox"/>	2. Azhal	<input type="checkbox"/>	3.Iyam	<input type="checkbox"/>
4. Vali Azhal	<input type="checkbox"/>	5. Vali Iyam	<input type="checkbox"/>	6. Azhal Vali	<input type="checkbox"/>
7 Azhal Iyam	<input type="checkbox"/>	8.Iya Vali	<input type="checkbox"/>	9. Iya Azhal	<input type="checkbox"/>

93. MANIKKADAI NOOL (Viral Kadai Alavu)

IYMPORIGAL / IYMPULANGAL

	1.Normal	2.Affected	
94.Mei	<input type="checkbox"/>	<input type="checkbox"/>	_____
95.Vaai	<input type="checkbox"/>	<input type="checkbox"/>	_____
96.Kan	<input type="checkbox"/>	<input type="checkbox"/>	_____
97.Mookku	<input type="checkbox"/>	<input type="checkbox"/>	_____
98.Sevi	<input type="checkbox"/>	<input type="checkbox"/>	_____

KANMENTHIRIYANGAL / KANMAVIDAYANGAL

	1.Normal	2.Affected	
99.Kai	<input type="checkbox"/>	<input type="checkbox"/>	_____
100.Kaal	<input type="checkbox"/>	<input type="checkbox"/>	_____
101.Vaai	<input type="checkbox"/>	<input type="checkbox"/>	_____
102.Eruvaai	<input type="checkbox"/>	<input type="checkbox"/>	_____
103.Karuvaai	<input type="checkbox"/>	<input type="checkbox"/>	_____

104. YAAKAI

1.Vali	<input type="checkbox"/>	2.Azhal	<input type="checkbox"/>	3.Iyam	<input type="checkbox"/>
4.Vali Azhal	<input type="checkbox"/>	5.Vali Iyam	<input type="checkbox"/>	6.Azhal Vali	<input type="checkbox"/>
7.Azhal Iyam	<input type="checkbox"/>	8.Iya Vali	<input type="checkbox"/>	9.Iya Azhal	<input type="checkbox"/>

105.GUNAM

1.Sathuva Gunam ☐ 2. Raso Gunam ☐ 3. Thamo Gunam ☐

UYIR THAATHUKKAL

I. Vali

	1. Normal	2. Affected
106. Uyirkkaal (Praanan)	<input type="checkbox"/>	<input type="checkbox"/> _____
107. Keelnokkukkaal (Abaanan)	<input type="checkbox"/>	<input type="checkbox"/> _____
108. Paravukkaal (Viyaanan)	<input type="checkbox"/>	<input type="checkbox"/> _____
109. Melnokkukkaal (Udhaanan)	<input type="checkbox"/>	<input type="checkbox"/> _____
110. Nadukkaal (Samaanan)	<input type="checkbox"/>	<input type="checkbox"/> _____
111. Vaanthikkaal (Naagan)	<input type="checkbox"/>	<input type="checkbox"/> _____
112. Vizhikkaal (Koorman)	<input type="checkbox"/>	<input type="checkbox"/> _____
113.Thummikkaal (Kirukaran)	<input type="checkbox"/>	<input type="checkbox"/> _____
114. Kottavikkaal (Devathathan)	<input type="checkbox"/>	<input type="checkbox"/> _____
115. Veengukkaal (Dhananjeyan)	<input type="checkbox"/>	<input type="checkbox"/> _____

II.Azhal

	1.Normal	2. Affected
116.Aakkanal (Anala pitham)	<input type="checkbox"/>	<input type="checkbox"/> _____
117.Ollolithee (Prasaka pitham)	<input type="checkbox"/>	<input type="checkbox"/> _____
118.Vanna yeri (Ranjaka pitham)	<input type="checkbox"/>	<input type="checkbox"/> _____
119.Nokkazhal (Aalosaka pitham)	<input type="checkbox"/>	<input type="checkbox"/> _____
120.Aatralangi (Saathaka pitham)	<input type="checkbox"/>	<input type="checkbox"/> _____

III. Iyam

	1. Normal	2. Affected
121.Aliiyam (Avalambagam)	<input type="checkbox"/>	<input type="checkbox"/> _____
122.Neerpiyam (Kilethagam)	<input type="checkbox"/>	<input type="checkbox"/> _____
123.Suvaikaaniyam (Pothagam)	<input type="checkbox"/>	<input type="checkbox"/> _____
124.Niraivuiyam (Tharpagam)	<input type="checkbox"/>	<input type="checkbox"/> _____
125.Ondriiyam (Santhigam)	<input type="checkbox"/>	<input type="checkbox"/> _____

UDAL THAATHUKKAL

	1. Normal	2. Affected
126.Saaram	<input type="checkbox"/>	<input type="checkbox"/> _____
127.Senneer	<input type="checkbox"/>	<input type="checkbox"/> _____
128.Oon	<input type="checkbox"/>	<input type="checkbox"/> _____
129.Kozhuppu	<input type="checkbox"/>	<input type="checkbox"/> _____
130.Enbu	<input type="checkbox"/>	<input type="checkbox"/> _____
131.Moolai	<input type="checkbox"/>	<input type="checkbox"/> _____
132.Sukkilam	<input type="checkbox"/>	<input type="checkbox"/> _____

MUKKUTRA MIGU GUNAM

I. Vali Migu Gunam

	1. Present	2. Absent
133.Emaciation	<input type="checkbox"/>	<input type="checkbox"/>
134.Blackish colouration of the body	<input type="checkbox"/>	<input type="checkbox"/>
135.Desire to take hot food	<input type="checkbox"/>	<input type="checkbox"/>

136.Tremors	<input type="checkbox"/>	<input type="checkbox"/>
137.Abdominal distension	<input type="checkbox"/>	<input type="checkbox"/>
138. Constipation	<input type="checkbox"/>	<input type="checkbox"/>
139. Insomnia	<input type="checkbox"/>	<input type="checkbox"/>
140. Weakness	<input type="checkbox"/>	<input type="checkbox"/>
141. Weakness of sense organs	<input type="checkbox"/>	<input type="checkbox"/>
142. Giddiness	<input type="checkbox"/>	<input type="checkbox"/>
143. Sluggishness	<input type="checkbox"/>	<input type="checkbox"/>

II. Azhal Migu Gunam

	1. Present	2. Absent
144.Yellowish discolouration of the skin	<input type="checkbox"/>	<input type="checkbox"/>
145.Yellowish discolouration of the eye	<input type="checkbox"/>	<input type="checkbox"/>
146.Yellowish discolouration of urine	<input type="checkbox"/>	<input type="checkbox"/>
147.Yellowish discolouration of faeces	<input type="checkbox"/>	<input type="checkbox"/>
148.Increased appetite	<input type="checkbox"/>	<input type="checkbox"/>
149.Burning sensation in the body	<input type="checkbox"/>	<input type="checkbox"/>
150.Insomnia	<input type="checkbox"/>	<input type="checkbox"/>

III. Iyam Migu Gunam

	1. Present	2. Absent
151.Excessive salivation	<input type="checkbox"/>	<input type="checkbox"/>
152.Eraippu (dyspnoea)	<input type="checkbox"/>	<input type="checkbox"/>

- | | | |
|---------------------------|--------------------------|--------------------------|
| 153.Heaviness of the body | <input type="checkbox"/> | <input type="checkbox"/> |
| 154.Whiteness of the body | <input type="checkbox"/> | <input type="checkbox"/> |
| 155.Chillness of the body | <input type="checkbox"/> | <input type="checkbox"/> |
| 156.Reduced appetite | <input type="checkbox"/> | <input type="checkbox"/> |
| 157.Cough | <input type="checkbox"/> | <input type="checkbox"/> |
| 158.Increased sleep | <input type="checkbox"/> | <input type="checkbox"/> |
| 159.Sluggishness | <input type="checkbox"/> | <input type="checkbox"/> |

160.NOI UTRA KAALAM

- | | | | |
|------------------|--------------------------|--------------------|--------------------------|
| 1. Kaarkaalam | <input type="checkbox"/> | 2. Koothirkaalam | <input type="checkbox"/> |
| 3.Munpanikaalam | <input type="checkbox"/> | 4.Pinpanikaalam | <input type="checkbox"/> |
| 5.Ilavenirkaalam | <input type="checkbox"/> | 6.Muthuvenirkaalam | <input type="checkbox"/> |

161.NOI UTRA NILAM

- | | | | | | |
|-----------|--------------------------|----------|--------------------------|------------|--------------------------|
| 1.Kurinji | <input type="checkbox"/> | 2.Mullai | <input type="checkbox"/> | 3.Marutham | <input type="checkbox"/> |
| 4.Neithal | <input type="checkbox"/> | 5.Paalai | <input type="checkbox"/> | | |

162.Date of Birth

163.Time of Birth

164.Place of Birth

165.NATCHATHIRAM

- | | | | | | |
|---------------|--------------------------|------------------|--------------------------|-----------------|--------------------------|
| 1.Aswini | <input type="checkbox"/> | 2.Barani | <input type="checkbox"/> | 3.Karthikai | <input type="checkbox"/> |
| 4.Rohini | <input type="checkbox"/> | 5.Mirugaseeridam | <input type="checkbox"/> | 6.Thiruvathirai | <input type="checkbox"/> |
| 7.Punarpoosam | <input type="checkbox"/> | 8.Poosam | <input type="checkbox"/> | 9.Aayilyam | <input type="checkbox"/> |
| 10.Makam | <input type="checkbox"/> | 11.Pooram | <input type="checkbox"/> | 12.Uththiram | <input type="checkbox"/> |

- | | | | | | |
|----------------|--------------------------|------------------|--------------------------|---------------|--------------------------|
| 13.Astham | <input type="checkbox"/> | 14.Chithirai | <input type="checkbox"/> | 15.Swathi | <input type="checkbox"/> |
| 16.Visakam | <input type="checkbox"/> | 17.Anusam | <input type="checkbox"/> | 18.Kettai | <input type="checkbox"/> |
| 19.Moolam | <input type="checkbox"/> | 20.Pooradam | <input type="checkbox"/> | 21.Utthiradam | <input type="checkbox"/> |
| 22.Thiruvonam | <input type="checkbox"/> | 23.Avittam | <input type="checkbox"/> | 24.Sathayam | <input type="checkbox"/> |
| 25.Poorattathi | <input type="checkbox"/> | 26.Utthirattathi | <input type="checkbox"/> | 27.Revathi | <input type="checkbox"/> |
| 00.Not known | <input type="checkbox"/> | | | | |

166.RAASI

- | | | | | | |
|--------------|--------------------------|--------------|--------------------------|------------|--------------------------|
| 1.Mesham | <input type="checkbox"/> | 2.Rishabam | <input type="checkbox"/> | 3.Midhunam | <input type="checkbox"/> |
| 4.Kadakam | <input type="checkbox"/> | 5.Simmam | <input type="checkbox"/> | 6.Kanni | <input type="checkbox"/> |
| 7.Thulam | <input type="checkbox"/> | 8.Viruchigam | <input type="checkbox"/> | 9.Dhanusu | <input type="checkbox"/> |
| 10.Magaram | <input type="checkbox"/> | 11.Kumbam | <input type="checkbox"/> | 12.Meenam | <input type="checkbox"/> |
| 00.Not known | <input type="checkbox"/> | | | | |

Examination:

- | | | | | |
|-----------------------------|--------------------------|--------------------------|----------------|--------------------------------------|
| | 1. Yes | 2. No | If yes, | |
| 167. Swelling | <input type="checkbox"/> | <input type="checkbox"/> | Right | <input type="checkbox"/> Size _____ |
| | | | Left | <input type="checkbox"/> Shape _____ |
| | 1.Normal | 2. Affected | | |
| 168. Skin over the swelling | <input type="checkbox"/> | <input type="checkbox"/> | | _____ |
| | 1.Positive | 2. Negative | | |
| 169. Cough impulse test | <input type="checkbox"/> | <input type="checkbox"/> | | _____ |
| | 1.Normal | 2. Affected | | |
| 170. Position of the penis | <input type="checkbox"/> | <input type="checkbox"/> | | _____ |

INVESTIGATION

BLOOD

171. TC (Cells/cu.mm) :
172. DC (%) : 1.P 2.L 3.E
4.B 5.M
173. Hb (gms%) :
174. E.S.R. (mm/hr) : 1.1/2hr 2.1hr
175. Blood Sugar (R) (mgs%) :
176. Blood Urea (mg/dl) :
177. Serum Creatinine (mg/dl) :
178. Lipid profile (mg/dl)
- 1.Total Cholesterol 2.HDL Cholesterol
- 3.Triglycerides 4. LDL Cholesterol
- 5.VLDL Cholesterol
- 6.TC/ HDL Cholesterol ratio
- 7.LDL/ HDL Ratio

URINE

179. Albumin : 0.Nil 1.Trace 2.+
3.++ 4.+++
180. Sugar : 0.Nil 1.Trace 2.+
3.++ 4.+++

Deposits	1. Yes	2. No	
181. Pus cells	<input type="checkbox"/>	<input type="checkbox"/>	_____
182. Epithelial cells	<input type="checkbox"/>	<input type="checkbox"/>	_____
183. RBCs	<input type="checkbox"/>	<input type="checkbox"/>	_____
184. Crystal and cast	<input type="checkbox"/>	<input type="checkbox"/>	_____
185. Urine culture	<input type="checkbox"/>	<input type="checkbox"/>	_____

MOTION TEST	1. Yes	2. No	
186. Ova	<input type="checkbox"/>	<input type="checkbox"/>	_____
187. Cyst	<input type="checkbox"/>	<input type="checkbox"/>	_____
188. Occult blood	<input type="checkbox"/>	<input type="checkbox"/>	_____

189. ULTRA SONOGRAPHY (Abdomen and Pelvis)

.....

190. X – ray Chest : (PA view)

(If necessary)

.....

CLINICAL SYMPTOMS OF ANDA VADHAM:

	1. Yes	2. NO	If yes
191. Descend of the intestine into the			
Scrotum	<input type="checkbox"/>	<input type="checkbox"/>	<div>Unilateral</div> <div>Bilateral</div>
192.Pain in the scrotum	<input type="checkbox"/>	<input type="checkbox"/>	_____
193.Swelling of the scrotum	<input type="checkbox"/>	<input type="checkbox"/>	_____
194.Reducibility	<input type="checkbox"/>	<input type="checkbox"/>	_____

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6. Yugimuni Vaidhiya Kaviyam-1000
7. Pararasasekaram –Vatharoga Nithanam
8. Theraiyar Kaapiyam
9. Athmaratchamirtham-Vaidhiya Saarasangiraham
10. Anubavavaidhiya Dheva Ragasiyam
11. Uyir kaakum Siddha Maruthuvam
12. Thotra kirama Aaraitchiyum Siddha Maruthuva Varalarum
- Dr. C.S. Utthama Rayan, H.P.I.M.
13. Udal Thathuvam – Dr. Pu.Mu. Venu Gopal, H.P.I.M.,
14. Siddha Maruthuvanga Surukkam
- Dr. C.S. Utthama Raayan, H.P.I.M.
15. Siddha Maruthuva Noi Naadal Noi Mudhal Naadal Thirattu
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19. Robbins Pathologic Basis of Disease
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21. A Manual on Clinical Surgery - S.Das
22. Essentials of Surgery - Sunil Chumber.
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INGUINAL HERNIA

Figure : 1

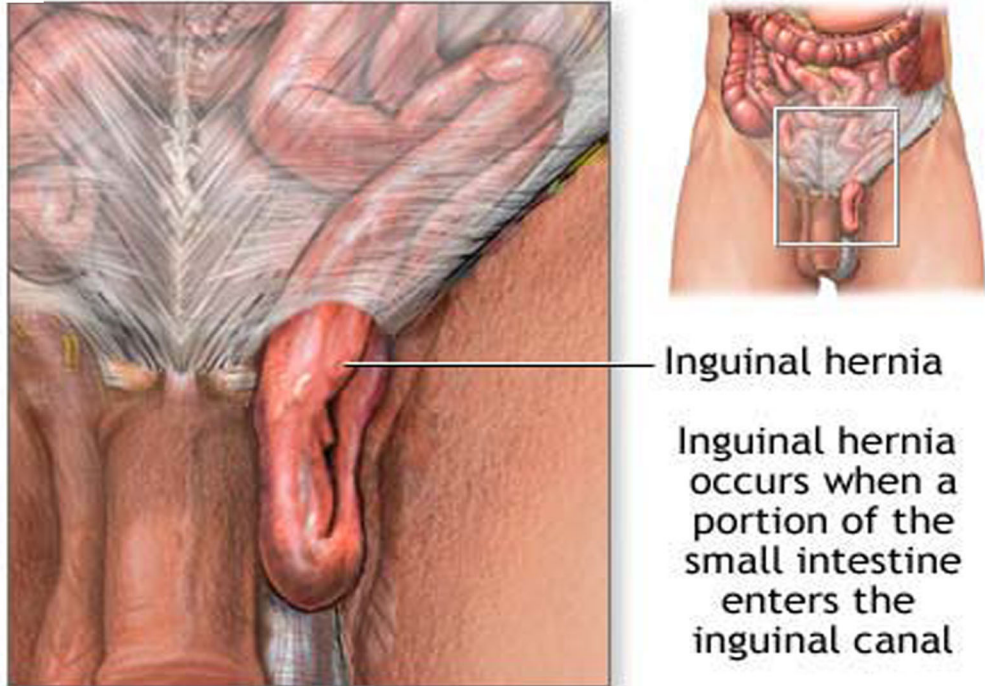
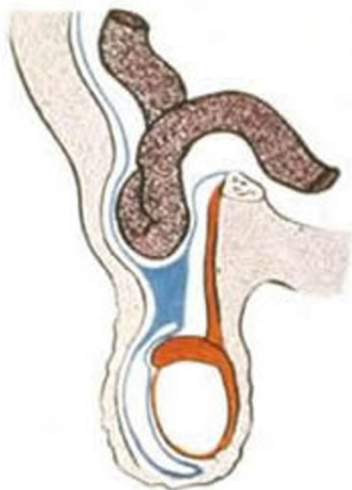
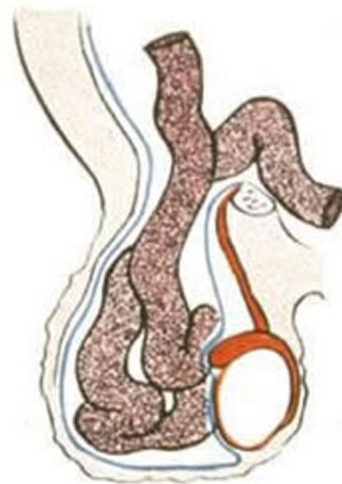


Figure : 2



Inguinal Hernia

Figure : 3



Complete Inguinal Hernia

Figure :4 . INGUINAL REGION

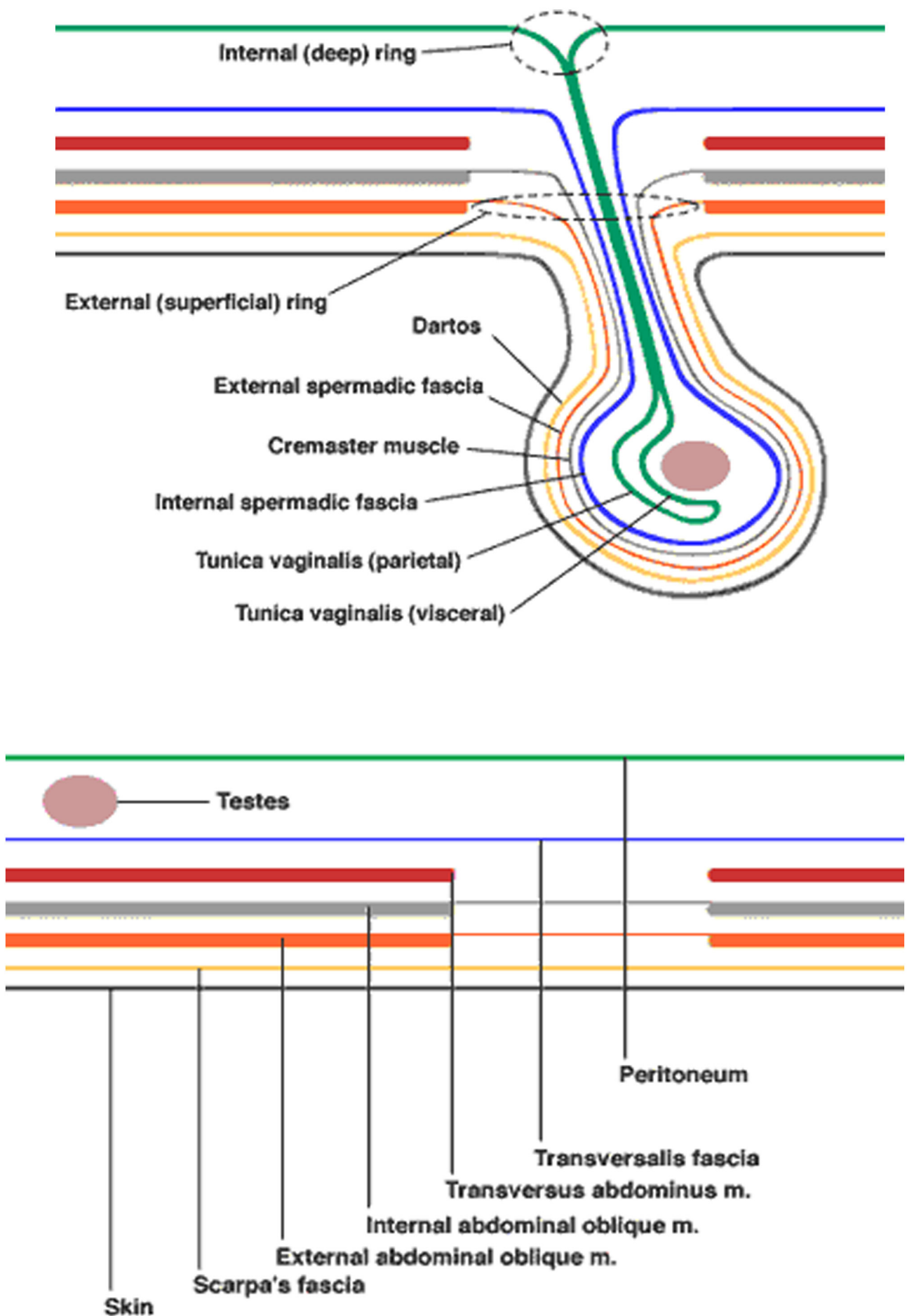
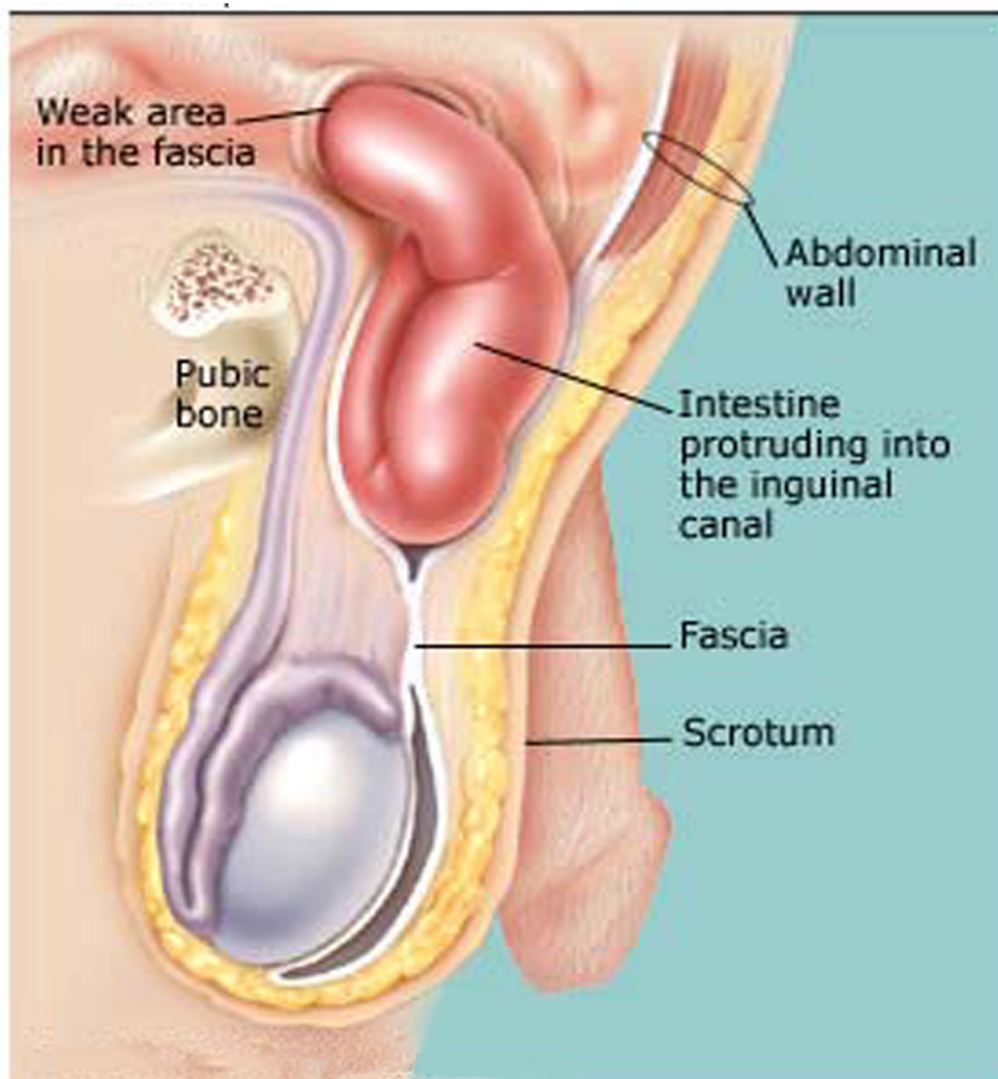


Figure :5 ANATOMY OF A HERNIA



AARTHI SCANSTM

AN ISO 9001 ORGANISATION

NAME : MR. ILAIYAPERUMAL	DATE : 22.05.2008
AGE : 24/M	ID.NO.: 4159
REF.BY.: DR.V.LALITHAMBIGAI, MD, (S).	

DOPPLER STUDY OF SCROTUM

RT. Testicle measures 3.6 x 1.0cms.

LT. Testicle measures 3.1 x 1.5cms.

Both testicles have a normal homogenous echogenicity and normal vascularity.

Inguinoscrotal swelling in left side of the scrotum.- due to hernia.
No hydrocele.

No focal lesion is seen in both testicles.

Intra-testicular arteries show normal flow and spectral pattern.

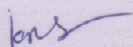
The epididymis is normal.

The veins of pampiniform plexus are normal on both sides. No reflux is seen on valsalva.

IMPRESSION:

Both testicle & epididymis appears normal.

Inguinoscrotal swelling in left side of the scrotum- due to hernia.



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Note : This imaging modality is having its own limitations. Hence this report Should be correlated with clinical features and other parameters.

